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Financial Situation Assessment of the Sony Corporation

Zhodnocení finanční situace společnosti Sony Corporation

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The declaration

“Herewith I declare that I elaborated the entire thesis, including all annexes, independently”

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1. Introduction

After World War II, an engineer named Masaru Ibuka and his engineer friend Akio Morita who were the cofounder of Sony Corporation happened to meet. After that in 1946, when Masaru Ibuka invented an electric rice cooker that made them earn the first fortune, they decided to found the Sony Corporation, a legendry corporation that had been in business of electronic devices for more than half a century. Because of the advancement of the technology they held, the reasonable prices, high qualities of their productions and outstanding sales strategy, Sony became the most valuable company on the earth.

From 1990s to the beginning of 21th century, the success in radio, Trinitron television, Walkman and PlayStation made Sony's stock rise all the way until 2002, the 'Sony shock' happened, which leaded to decreasing in a series of relative high-tech stocks. This event was because a wrong determination made by the then CEO, Idei Nobuyuki. This situation continued till the new CEO Hirai Kazuo took offices of Sony.

The objective of this thesis is to analyse the financial situation after Hirai Kazuo took charge of Sony, moreover based on the events happened throughout these recent years from 2011 to 2016, an explanation is going to be given to analyse how did Sony try to revive under the command of Hirai Kazuo and whether it have returned or will return first place in this field.

Five main chapters with a sequence from theory to practice constitute the body of this thesis. In the first chapter, a background and simplified development history of Sony Corporation is introduced to show the objective of this thesis.

In the second chapter, there are methodologies of financial analysis being used in the thesis. Firstly, three financial reports including balance sheet, income statement and cash flow statement are introduced. After that, a common-size analysis, an analysis converting each line of financial statement data into an easily comparable, or common-size, amount measured as a percentage, and its two branches which are horizontal analysis, an analysis comparing the historical financial information over a series of reporting periods and vertical analysis, an analysis comparing different item to identify its proportion taking up in one year, will be introduced. Finally, there are two methods, financial ratio analysis and pyramid decomposition analysis, which are used to assess its performance to compare with other competitors in the same field and assess how the component ratios contribute to the change in basic ratio, respectively.

In the third chapter, a description containing development history, products and services, recent tendency, recent financial performance and process status.

In the fourth chapter, though researching the financial statements provided by official department and looking for relative news, an analysis of financial situation from 2012 to 2016 will be illustrated by methodologies mentioned in the second chapter.

In the fifth chapter, a report summarised by the data and analysis in the fourth chapter shows what situation Sony Corporation is.

In the last chapter, a conclusion is given to conclude the financial situations of Sony Corporation so that everyone care about this company can make their own choice whether they are going to hold the stock of Sony.

2. Description of the Financial Analysis Methods

In this chapter, we will explain the theoretical approaches to financial analysis basic definitions and proper use of these methods, which are the basis to analyse the selected company, including common-size analysis, financial ratio analysis and pyramid decomposition.

2.1 Common Definition of Financial Analysis

Financial analysis is an aspect of the financial function of the entire enterprise. It involves reviewing historical data to obtain information about the company's current and future financial position. Financial analysis can be applied to a variety of situations, providing business managers with the information they need to make critical decisions. The ability to understand financial data is essential to any business manager. Finance is the language of business. Business objectives and objectives are set in financial terms, and the results are measured in terms of financial terms. Understanding and managing skills required by a company includes fluency in financial language - reading and understanding financial data and presenting information in the form of financial statements.

The financial function of an enterprise involves assessing economic trends, formulating financial policies and formulating long-term plans for business activities. It also involves the use of an internal control system to process cash, confirm sales, expenses, inventory valuation and capital expenditure approval. In addition, the finance department reports these internal control systems through the preparation of financial statements, such as income statement, balance sheet and cash flow statement.

Finally, finance includes analysing data in financial statements to provide valuable information for management decisions. In this way, financial analysis is only part of the overall financial function, but it is a very important part. The company's accounts and reports contain a lot of information. Finding the complete meaning of a statement is the core of financial analysis. Understanding how accounts relate to each other is part of the financial analysis. Another part of financial analysis involves the use of digital data contained in company statements to reveal patterns of activity that may not be apparent on the surface.

2.2 Documents used in Financial Analysis

The three main sources of data for financial analysis are a company's balance sheet, income statement, and cash flow statement.

2.2.1 Balance Sheet

A balance sheet is a time for a financial report to provide a snapshot of the position of an enterprise at a given point, including its assets (economic resources), its liabilities (debts or obligations), its total or net assets (assets minus liabilities). "The balance sheet is not intended to describe the ongoing activities of the company," Joseph Peter Simini wrote on *Balance Sheet Basics for Nonfinancial Managers*. "It is not a movie but a freeze-frame. Its purpose is to depict the dollar value of various components of a business at a moment in time." The balance sheet is sometimes referred to as the statement of financial position or the statement of financial position.

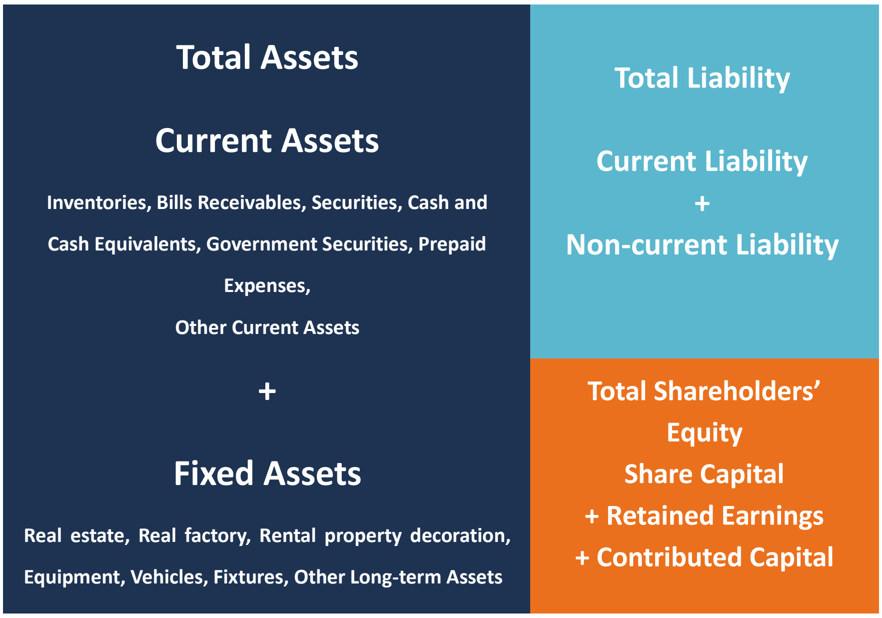
The balance sheet usually appears in two different forms. In the report, the asset account is listed first, and the liabilities and owner's equity accounts are in the direct sequence below the asset. In the account table, the balance sheet is organized horizontally, with the asset account on the left, and the liabilities and owner's equity account on the right side. The term "balance sheet" derives from the latter form: when both sides are completed, they should sum up the same amount of dollars - in other words, they should be balanced.

The balance sheet adheres to the following formula:

$$Total\ Assets = Total\ Liabilities\ (Debt) + Owners'\ Equity. \quad (2.1)$$

Most of the assets and liabilities of an enterprise can be divided into three categories: assets, liabilities and owners' equity. Some balance sheets also contain an annotated part containing information that does not conform to any of the above accounting categories. Information that may be included in the part of the bill will include a pending lawsuit referring to changes that may affect future debt or corporate accounting practices.

Figure 2.1 Balance Sheet Sample



Assets are the goods owned by the enterprise, whether or not they are fully paid. These projects can be made from cash (all assets with the highest liquidity) to inventory, equipment, patents and deposits held by other enterprises. Assets are further classified into the following categories: current assets, fixed assets and miscellaneous or other assets. How assets are divided into these categories and how they match the corresponding liability categories are important indicators of corporate health.

Current assets include cash, government securities, securities, bills receivable, receivables, inventory, prepaid expenses, and any other items that can be converted into cash during a year's normal business process.

The current assets should be reasonably balanced with the current liabilities. The current assets divided by current liabilities generate one of the company's "health indicators", that is, the "liquidity ratio". If this ratio is unfavourable, the company may lack liquidity - which means necessary resources to fulfil its cash obligations. Because inventory is sometimes difficult to convert into cash, "acid testing" is another ratio used. It includes current assets minus inventory divided by current liabilities. The company's "working capital" is determined by deducting the current liabilities of current assets. It is not a ratio, but a company health index based on currency.

Fixed assets include real estate, real factory, rental property decoration, equipment (from office equipment to heavy operation machinery), vehicles, fixtures and other assets that can reasonably predict life for a few years. In practice, most fixed assets, excluding land, will lose value over time in a period of depreciation. The depreciation of fixed assets is reported in an attempt to obtain only its present value.

Fixed assets also include intangible assets, such as the value of trademarks, copyrights, and the difficult categories known as goodwill. When someone buys a company and pays more than the present value and the sum of the fixed assets, the difference will be written in the book of the acquired entity as "goodwill". The value of this commodity can no longer be extracted unless it is sold to another commodity that is willing to purchase.

Fixed assets should, of course, maintain a reasonable balance with long-term liabilities. If a company owes less capital than its purchase value, it is an indicator of potential problems.

Because of past transactions, liabilities are obligations of enterprises to other entities. The scope of these entities is transferred to other companies (which have provided the value of the loan in exchange for the value of the loan) to other companies (the goods or services have been provided in exchange for the agreed compensation). Liabilities are usually divided into two categories: short-term or current liabilities and long-term liabilities.

The current liabilities will be paid within one year. These include payments to suppliers, taxes payable, due bills and accrued expenses (wages, salaries, withholding taxes). Current liabilities also include the "current" part of the long-term debt payable in the coming year. Long term liabilities are debts that a lender, a mortgage holder and other creditors repay over a long period of time.

Once the enterprise determines its assets and liabilities, it can determine the owner's equity, that is, the book value of the enterprise: the remaining part after deducting liabilities from the assets. If shareholders are involved in the business, owners' equity (also known as stockholders' equity) is essentially the company's net assets.

Leverage is calculated on the basis of its total equity. "Leverage" is a **long-term liability** divided by the total capital stock. The higher the leverage, the more financing the company borrows. Then people will say that it is highly leveraged, that is, it is more vulnerable to changes in the market, making it difficult to repay debt. If the leverage is small or moderate, the company can control its destiny more definitely.

2.2.2 Income Statement

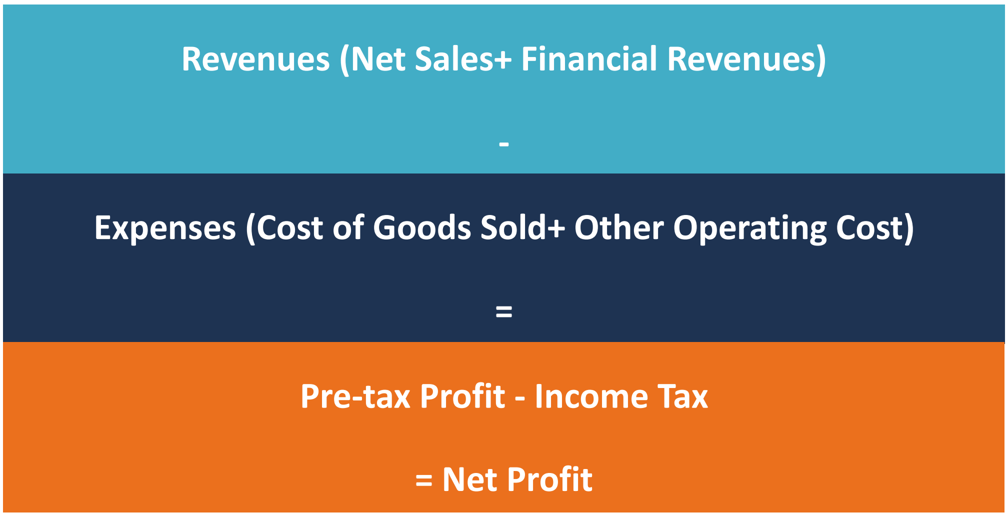
Contrary to the balance sheet, the income statement provides information about the performance of the company over a specified period of time. Although it did not disclose the company's current financial position, it did provide a sign of its future viability. The main contents of the profit statement are income, expenses and net profits or losses.

Revenues mainly includes sales, but financial analysts may also notice royalties, interest and unusual items. Similarly, business expenses usually include the cost of goods sold, but may also include some unusual items. Net income is the "bottom line" of the profit and loss statement. This figure is a major indicator of the company's achievements during the reporting period.

A company's net income for an accounting period is measured as follows:

$$Net\ Income = Revenues - Expenses + Gains - Losses. \quad (2.2)$$

Figure 2.2 Income Statement Sample



Expenses refer to the outflow of assets or other uses for a period of time due to the delivery or production of goods, the provision of services, or other activities that constitute the main or central business that is being carried out by the entity. For example, cost of goods sold, salaries and interest expenses.

Gain comes from the owner's equity (net assets) from the peripheral or incidental transactions of the entity, as well as all other transactions and events that affect the entity during the accounting period, except the income generated by the owner's income or investment. For example, the proceeds from the sale of buildings and the long-term debt yield of early retirement.

Losses are decreases in owners' equity (net assets) from peripheral or incidental transactions of an entity and from all other transactions and events affecting the entity during the accounting period except those that result from expenses or distributions to owners. For example, the sale of investment and the loss of litigation.

Accounting change refers to changes in accounting policies, changes in accounting estimates or changes in reporting subjects. Changes in accounting principles will lead to the adoption of accounting principles different from previous accounting principles. Estimated changes involve revisions of estimates, such as the useful life or surplus value of depreciation assets, bad debt losses and warranty costs. The change in the reporting entity occurs when the company changes its composition in the past period, such as the acquisition of a new subsidiary.

Net income is the portion of all income and profit over a period of time that exceeds all expenses and losses in the period. Net loss is revenue and earnings over a period over expenses and losses.

Generally accepted accounting principles require disclosure of the amount of earnings per share in the profit and loss statement of all publicly reported entities. Earnings per share provide indicators to measure enterprise management and past performance and enable financial statements users to assess the future prospects of the enterprise and to assess the allocation of dividends to shareholders. The disclosure of earnings per share on the impact of terminating and special projects is optional, but the earnings, income before special projects, cumulative effects of changes in accounting principles and net income are required to be disclosed.

Initial EPS and fully diluted earnings per share may also be required. The initial earnings per share are based on the outstanding common stock and equities which are substantially equivalent to the common stock and have diluted effects on earnings per share. Convertible bonds, convertible preferred stock, stock options and warrants are examples of common stock equivalents. The overall dilution of earnings per share is a form of expression, showing that if all the common shares that have been issued separately to reduce earnings per share at the beginning of the period will be diluted for earnings per share.

2.2.3 Cash Flow Statement

The cash flow statement is a financial statement describing the source of the company's cash and the use of cash in a specified period. It does not include non-cash items such as depreciation. This is very useful in determining the short-term viability of a company, especially its ability to pay bills. Because cash flow management is especially important for businesses and small businesses, most analysts suggest that entrepreneurs should study the cash flow statement at least quarterly.

The cash flow statement is similar to the profit and loss account, which records the performance of the company in a specified time period. The difference between the two is that the income statement also considers some non-cash accounting items, such as depreciation. The cash flow statement clears all this and shows how much money the company has actually generated. The cash flow statement shows the performance of the company in managing cash inflows and outflows. It provides a clearer picture of the solvency of creditors and the ability of financial growth.

If there is not enough cash to pay the bill, it is entirely possible to show profitable companies according to accounting standards. Comparing the amount of cash generated with the outstanding debt, known as the "cash flow ratio", shows the company's ability to repay loans and interest payments. If a slight decline in the company's quarterly cash flow will damage the ability to repay loans, the company's net income is low, but the level of cash flow is higher and is at a higher risk.

Unlike many ways of reporting earnings, companies are rarely able to manipulate their cash position. In addition to any thorough fraud, the cash flow statement illustrates the whole story. The company either has cash or has no cash. Analysts will pay close attention to any company's cash flow statement to understand its overall health.

The cash flow statement classifies cash receipts and payments according to whether they come from operation, investment or financing activities. The cash flow statement is divided into several parts from the same three functional areas within the scope of business including **cash from operation**, the cash generated from day-to-day business operations, **cash from investing**, the cash proceeds from investing in assets and the sale of other businesses, equipment or other long-term assets, **cash from financing**, the cash paid or received from issuing and borrowing funds, which also includes the dividends paid. (although it is sometimes listed under cash from operations.), net increase or decrease in cash, and usually, the cash increase of the previous year will be written normally, and the cash reduction is usually expressed in parentheses.

Figure 2.3 Cash Flow Statement Sample

In November 1987, the Financial Accounting Standards Board (FASB) issued a "Statement of Financial Accounting Standards" that required the enterprise to publish a statement of cash flow rather than a statement of changes in the financial situation. There are two ways of preparing and presenting this statement, direct method and indirect method. FASB encourages but does not require direct reporting. The two ways of reporting only affects the display of the operation part. The investment and financing parts are presented in the same way, no matter how they are presented.

Direct method, also known as the profit and loss method, reports the main types of operating cash receipts and disbursements. This method of preparing cash statements starts with the money received and deducts the amount of money spent to calculate net cash flow. Depreciation is completely excluded, because although it is an expenditure that affects net profit, it is not money spent or received.

Indirect method, also known as reconciliation method, focuses on net income and net cash flow generated by business activities. Using this method, starting from net income, increasing depreciation, and then calculating the change of balance sheet items. The net result is that the net cash flow generated by direct method is the same. The indirect method is to add depreciation to the equation because it starts with net profit and deducts depreciation as expenditure.

Whether direct or indirect, the operative portion of the cash flow statement ends with net cash provided by operational activities. This is the most important item in the cash flow statement. The company must generate enough cash from its operations to maintain its business activities. If a company constantly needs to borrow or acquire additional investment capital to survive, the company's long-term existence is at risk.

2.3 Common-size Analysis

A common-size financial statements shows all items as a percentage of the ordinary base. This type of financial statement can easily analyse the time between companies or companies. The value in common-size statement is represented by the percentage of the representation component, such as revenue.

2.3.1 Horizontal Analysis

Horizontal common-size analysis compares each amount with a base amount for a selected base year. The goal is to determine the amount of any increase or decrease in these accounts, usually expressed as both a Currency amount and a percentage. The computation of changes is determined by comparing the current period to a base period. And it can be compared by two forms which are shown in the following equations:

$$Absoluetly\ Change = Current\ Amount - Base\ Amount, \quad (2.3)$$

$$Percentage\ Change = \frac{Current\ Amount - Base\ Amount}{Base\ Amount}. \quad (2.4)$$

For example, let's say we own an ice cream shop. We want to do a horizontal analysis on our slowest months, January through March, and we want to know if our off-season marketing effort is working. We will compare the first quarter of our fiscal year from 2014 to that quarter in 2015. An absolutely change in cash flow from $10,000 during the first quarter of 2014 to $15,000 during the same quarter of would be

= current amount – base amount

= $15,000 - $10,000

=$ 5,000.

If nothing else has changed, we can surmise that our marketing effort is working.

A percentage analysis is where percentage differences in items are compared over certain time periods. Any dollar amounts are converted to percentages and used to make these comparisons.

Let's look again at the cash flows from our ice cream shop. We have a change in cash flow from \$10,000 to \$15,000. Our percentage analysis would be

= (current amount – base amount) ÷ base amount

= (\$15,000 - \$10,000) / \$10,000

= 0.5 or 50%.

Again, this tells us that if nothing else changed during this time period, our marketing effort is working.

2.3.2 Vertical Analysis (Common-size Analysis)

Vertical analysis compares each amount with a base amount selected from the same year. Generally, the base amount is total assets for the statement of financial position, and net sales for the income statement. And it can be compared by two forms which are shown in the following equations:

$$Common\ size\ Amount = \frac{Analysis\ Amount}{Base\ Amount} \cdot 100\%. \qquad (2.5)$$

Let's assume that Sam's cash balance is \$75,000 and his total assets are \$1,835,000. If we apply common size analysis, the common size amount would be:

= (analysis amount ÷ base amount of total assets) x 100%

= (\$75,000 ÷ \$1,835,000) · 100%

= 4.1%.

Therefore, 4.1% of Sam's total assets are made up of cash.

2.4 Elements of Financial Health

A company's overall financial health can be assessed by examining three major factors: its liquidity, leverage, and profitability. All three of these factors are internal measures that are largely within the control of a company's management. It is important to note, however, that they may also be affected by other conditions—such as overall trends in the economy—that are beyond management's control.

2.4.1 Analysis Method of Profitability Ratio

Profitability refers to the performance of management in the use of enterprise resources. Many ways to measure earnings involve calculating the investment returns of a company. Most entrepreneurs decide to start their own business in order to get higher returns than banks or other low-risk investments. If profitability indicators show that this is not happening - especially if small businesses have gone beyond the start-up phase - then entrepreneurs should consider selling business and reinvesting their funds elsewhere. However, it is important to note that many factors may affect profit - taking measures, including prices, changes in volume or cost, and the purchase of assets or borrowed funds.

Net profit margin is the percentage of net profit in net sales. The index reflects the net profit per yen sales revenue, which represents the level of income from sales revenue. It is directly proportional to net profit and is inversely proportional to the net sales. In addition, the enterprise must gain more net profit at the same time to increase the net sales, so that the net profit margin can be kept constant or improved. By analysing the fluctuation of the net profit margin, we can urge enterprises to improve their management and raise their profit level while expanding sales. The formula (2.6) for net profit margin is as follows:

$$Net\ Profit\ Margin\ = \left(\frac{Net\ Profits}{Net\ Sales}\right) \cdot\ 100. \qquad (2.6)$$

Gross profit margin is a relative profit of the total sales after the cost of goods sold is deducted, which reflects the management efficiency of the enterprise in the formulation of the product price and the control of the product cost. The formula (2.7) for gross profit margin is as follows:

$$Gross\ Profit\ Margin = \frac{Total\ Sales - Cost\ of\ Goods\ Sold}{Total\ Sales}. \qquad (2.7)$$

Operating margin ratio, also known as the operating profit margin, is a profitability ratio that measures the percentage of operating income to total revenues. In other words, the operating margin ratio indicates the remaining revenues after payment of all variable costs or operating costs. On the contrary, this ratio shows the proportion of revenues that can cover nonoperating costs, such as interest expense. The formula (2.8) for operating profit margin is as follows:

$$Operating\ Margin\ Ratio = Operating\ income - \ Net\ Sales. \quad (2.8)$$

Pre-tax profit margin refers to the total income or total loss on income statement of the enterprise before a certain period of reduction of the income tax expenditure or the deduction of the income tax relief. The formula (2.9) for pre-tax margin is as follows:

$$Pretax\ Margin = \left(\frac{Income\ Before\ Taxes}{Revenues}\right) \cdot 100. \quad (2.9)$$

Return on sales is used to calculate the proportion of sales revenue. This concept is very useful for determining the ability of management to effectively generate profits from a certain level of sales. The increase of returns indicates that business efficiency has been improved, while constant decline is a powerful indicator for financial distress. The formula (2.10) for return on sales is as follows:

$$Return\ on\ Sales = \frac{Income\ Before\ Interest\ and\ Taxes}{Net\ Sales}. \quad (2.10)$$

Return on assets (ROA) is assessed relative to costs and expenses, and it is analysed in comparison to assets to see how effective a company is in deploying assets to generate sales and eventually profits. The term return in the ROA ratio customarily refers to net profit or net income, the amount of earnings from sales after all costs, expenses and taxes. The formula (2.11) for return on assets is as follows:

$$Return\ on\ Assets = \frac{Net\ Income}{Average\ Total\ Assets}. \quad (2.11)$$

Return on equity (ROE) is a ratio that concern shareholders the most, because it measures their ability to get equity investment returns. The assets size may increase sharply without increasing any equity, because it can benefit from greater returns on a larger asset base. As the company increases the size of the assets and produces higher profit margins and higher profit margins, shareholders can retain most of the return growth when the result of the use of the debt is additional assets. The formula (2.12) for return on equity is as follows:

$$Return\ on\ Equity = \frac{Net\ Income}{Shareholder's\ Equity}. \qquad (2.12)$$

2.4.2 Analysis Method of Leverage Ratio

Leverage refers to the ratio of corporate capital invested by an investor to a creditor. In other words, leverage is the extent to which companies rely on borrowing to finance their businesses. A company with a high proportion of its equity will be regarded as highly leveraged. Leverage is an important aspect of financial analysis because it is closely watched by bankers and investors. The high leverage ratio may increase the risk and the risk of business decline, but with this high risk, it is possible to get higher returns.

Debt ratio is the leverage ratio of the total liabilities of a company as a percentage of total assets. In a sense, the debt ratio indicates that the company has the ability to repay its debts with assets. In other words, it shows how much assets the company has to sell to repay all its debts. The formula (2.13) for debt ratio is as follows:

$$Debt\ Ratio = \frac{Total\ Liabilities}{Total\ Assets}. \qquad (2.13)$$

Equity ratio is an investment leverage or solvency ratio. It compares the total equity and total assets of a company to measure the amount of assets invested by the owner. The formula (2.14) for equity ratio is as follows:

$$Equity\ Ratio = \frac{Total\ Equity}{Total\ Assets}. \qquad (2.14)$$

Debt to equity ratio is a financial, liquidity ratio that compares the total debt and total equity of a company. Debt to equity ratio shows the ratio of corporate financing from creditors and investors. A higher debt to equity ratio indicates that creditor financing (bank loans) is more than investor financing (shareholders). The formula (2.15) for debt to equity ratio is as follows:

$$Debt\ to\ Equity\ Ratio = \frac{Total\ Liabilities}{Total\ Equity}. \qquad (2.15)$$

Time interest income ratio (sometimes called interest coverage) is the coverage rate used to measure the proportion of future income that can be used to pay interest expenses. The formula (2.16) for time interest income ratio is as follows:

$$Time\ interest\ income\ ratio = \frac{Income\ Before\ Interest\ and\ Taxes}{Interest\ Expenses}. \quad (2.16)$$

2.4.3 Analysis Method of Liquidity Ratio

Liquidity refers to the ability of a company to pay its current bills and expenses. In other words, liquidity is related to the availability of cash and other assets to pay accounts payable, short-term liabilities and other liabilities. All small businesses need liquidity to pay their bills on time, although start-ups and young companies are often less mobile. In mature companies, low liquidity levels may indicate poor management or additional capital requirements. Of course, the liquidity of any company may vary depending on the seasons, the time of sale and the state of the economy.

Companies tend to encounter liquidity problems, because cash outflows are inflexible, and income is often uncertain. Creditors expect their money during the commitment period, and employees expect regular pay. However, cash in the enterprise usually does not follow the established timetable. Sales volume is as volatile as customer collection. Due to the difference between cash generation and cash payment, enterprises should maintain a certain proportion of current assets and current liabilities to ensure adequate liquidity.

Current ratio is a liquidity and efficiency ratio that measures a company's ability to use its existing assets to repay short-term liabilities. Liquidity ratio is an important indicator of liquidity because short-term liabilities will expire next year. The formula (2.17) for current ratio is as follows:

$$Current\ Ratio = \frac{Current\ Asset}{Current\ Liabilities}. \quad (2.17)$$

Quick ratio or **acid test ratio** is a liquidity ratio, which is used to measure the ability of a company to pay its current liabilities only when the fast assets expire. Current assets are liquid assets that can be converted into cash within 90 days or in a short time. Cash, cash equivalents, short-term investments or marketable securities and current accounts receivable regarded as current assets. The formula (2.18) for quick ratio is as follows:

$$Quick\ Ratio = \frac{Cash + Cash\ Equivalent + Short\ term\ Investments + Current\ Receivables}{Current\ Liabilities}. \quad (2.18)$$

Cash ratio or **cash coverage ratio** is a liquidity ratio that measures the ability of a company to repay current liabilities only with cash and cash equivalents. The cash ratio is much stricter than the current ratio or the quick ratio because no other liquid assets can be used to repay the current debt-only cash. The formula (2.19) for cash ratios as follows:

$$Cash\ Ratio = \frac{Cash+Cash\ Equivalent}{Current\ Liabilities}. \qquad (2.19)$$

Cash conversion cycle is a cash flow calculation, which attempts to measure the time required for a company to convert its investment in inventory and other resources into cash. In other words, the cash conversion cycle calculates the amount of cash in stock before inventory sales and the amount of cash collected from customers. The formula (2.20) and (2.21) for cash conversion cycle is as follows:

$$Cash\ Conversion\ Cycle=(Days\ Inventory\ Outstanding+Days\ Sales\ Outstanding+Days\ Payables\ Outstanding)\cdot 365, \qquad (2.20)$$

$$\text{Cash Conversion Cycle}=\left(\frac{\text{Inventory}}{\text{Cost of Sales}}+\frac{\text{Accounts Receivables}}{\text{Net Credit Sales}}+\frac{\text{Accounts Payable}}{\text{Cost of Sales}}\right)\cdot 365\cdot \qquad (2.21)$$

Net working capital is a liquidity measure that measures the company's ability to repay current liabilities with current assets. This measure is important for management, suppliers and ordinary creditors, because it shows the short-term liquidity of the company and the ability of management to make use of its assets effectively. The formula (2.22) for net working capital is as follows:

$$Net\ Working\ Capital = Current\ Assets - Current\ Liabilities. \qquad (2.22)$$

2.5 Pyramid Decomposition Analysis

Pyramid Decomposition Analysis is method of analysing a company's business activity through a set of financial ratio Pyramid charts. One of the ratios includes another, and the ratio at the spire is usually the ratio between operating income and operating assets.

2.5.1 Pyramid Decomposition Analysis of ROA

Pyramid decomposition analysis of ROA is a business activity by a pyramid chart of financial ratios. One ratio also includes another ratio, and the ratio at the spire is usually the ratio between operating income and operating assets. This model breaks the return on assets and explains how companies can increase investor returns. The formula (2.23) (2.24) and (2.25) for ROA and formula (2.26) for assets turnovers ratio is as follows:

$$ROA = \frac{Net\ Income}{Average\ Total\ Assets}, \tag{2.23}$$

$$ROA = Profit\ Margin \cdot Assets\ Turnover\ Ratio, \tag{2.24}$$

$$ROA = \frac{Net\ Income}{Net\ Sales} + \frac{Net\ Sales}{Average\ Total\ Assets}, \tag{2.25}$$

$$Assets\ Turnover\ Ratio = \frac{Net\ Sales}{Average\ Total\ Assets}. \tag{2.26}$$

2.5.2 Dupont analysis

DuPont analysis also calls the **Dupont model** is a financial ratio based on equity return, which is used to analyse the company's ability to increase returns on equity. In other words, this model breaks the return on equity and explains how companies can increase investor returns. The formula (2.27) and (2.28) for ROE is as follows:

$$ROE = Profit\ Margin \cdot Assets\ Turnover\ Ratio \cdot Financial\ Leverage, \tag{2.27}$$

$$ROE = \frac{Net\ Income}{Net\ Sales} + \frac{Net\ Sales}{Average\ Total\ Assets} + \frac{Total\ Assets}{Total\ Equity}. \tag{2.28}$$

3. Comparison of the History and Present Financial Situation

The objective of this chapter is to show the historical figure compared with present figure by some events happening on Sony throughout its history. This thesis will long to the time when Sony was founded in 1946, which was not called Sony, instead of the name, Tokyo Tsushin Kogyo, to introduce the peaks and bottoms that Sony has experienced in its glory history.

3.1 Overview of Historical Financial Situation of Sony

Established in 1946, the Tokyo Tsushin Kogyo (Tokyo Telecommunications Engineering Corporation), which was the former name of Sony, was founded by two engineers whose name is Masaru Ibuka and Akio Morita. Two energetic young men, who were the pioneer representatives of Japan's post-war economic development, started their business in the field of electric products.

3.1.1 The Road of Sony's Commercial successes

In the early 1950, when Ibuka travelled in Asia and heard about the Bell Lab's invention of transistor, he decided to convinced Bell to license the technology to his company, meanwhile plenty of Japanese companies were researching this technology with license. The process of research in Ibuka's company, however, exceeded many rivals, and made it then made this production commercially successful for the first time.

Then in 1968, after a hard work to design the Trinitron TV, the final product was pressed to public with a commitment of shipments of 10,000 units. This mission was given to Yoshida under the cajolement by Ibuka, which is a mission well beyond what engineering had told him was possible, and although Yoshida was furious at being put in charge of a task he felt was impossible, he finally accepted the assignment and successfully met the production goal. This product made Sony make a fortune so that Morita can pay off the loan borrowed three years before. In 1996, however, Sony's patent on the Trinitron display ran out. After the expiration of Sony's Trinitron patent, many competitors started to produce the similar production with lower cost and price. To some degree, the name Trinitron became a generic term referring to any similar set, for instant, Mitsubishi called their TV Diamondtron. Sony did not want to use the new technology, instead, it still research and develop some product similarly, which turned out to be a wrong decision.

Sony corporation with the rapid development in the end of the 20th century, finally, on May 14th, 1999, Sony went public.

Figure 3.1 Stock Price of Sony

Source: https://www.sony.net/SonyInfo/IR/stock/stockprice.html

3.1.2 The Decline of Sony

Possessing PlayStation console which defeated its rivals Nintendo, forced SEGA to exit this market, the technology of digital camera that exceeded its competitors, video receiver chips that captured the market, and hottest personal computers, VAIO series, Sony reached its historical peak in 2000. Since 2001, the global economic recession and the Internet bubble busting occurred. After the PlayStation was released in 1994, Sony hasn't released its upgraded product for 10 years. In the electronic field, Walkman does not support the MP3 format, causing Apple's iPod digital player to be the global sales, which have replaced the original status of Walkman.

The WEGN, a brand of TV acquired by Sony in 1975, which possessed the Trinitron technology, developed HD video technology independently and miscalculated the development of LCD TVs. Sharp and Samsung, which had liquid crystal technology, had achieved the leading position in TV imaging. A series of decision errors and the constant compression of electronic products with other factors made Sony's dramatic but unprecedented success in 2000, while it has been severely frustrated since 2002.

In April 2003, Sony announced its financial statement in FY2002. After the news of the company’s huge loss was revealed, the Sony crisis began to surface, triggering Sony Shock. Sony’s stock fell 25% for 2 consecutive days and induced a shock in Japan’s stock market. High-tech stocks experienced a way down, drove the INDEXNIKKEI to drop sharply, and shocked the Japanese stock market with a phenomenon that high-tech company stocks were sold off by the investors. The criticism on CEO Nobuyuki Idei who has been criticized for dreaming for a long time and being unprofessional constantly was released by media and public, further Idei who had been selected as the most successful CEO from the past has become the worst CEO in December 2003 when Sony also announced the “Transition 60” reform plan that expected the electronic sector's surplus to reach 10% within three years.

3.2 Sony’s Road to Recovery and Present Financial situation

This paragraph only describes a process that Sony’s gradual decline after its peak in the early 21st century, and then gradually recovers.

3.2.1 The Net Loss in the early term of New CEO Kazuo Hirai

At the beginning of Hirai’s post as president, he began a series of cost-cutting decisions. Sony started to announce the layoff of 10,000 people in 2012, accounting for about 6% of the 160,000 employees worldwide. In May 2012, it terminated cooperation with Sharp on the manufacturing and sales of panels and LCD modules. In June 2012, the chemical sector was sold for about 40 billion yen. In July 2012, Gaikai, a game video stream company own by Sony, was acquired for US$380 million.

In addition to reducing costs, Hirai has also focused on mergers and acquisitions or working with potential companies. In August 2012, it acquired the remaining shares of So-net, making it a wholly-owned subsidiary. In December 2012, it established a joint venture with Olympus to establish a medical business company. Sony’s net profit for 2012 was 43 billion yen, the first profit since 2008.

However, the following year, Sony announced its financial statements in March, showing the company's losses amounted to 1.26 billion U.S. dollars (128.4 billion yen), while the company earned more than 400 million U.S. dollars in the previous fiscal year. The reason for

Sony's loss is that there are still too many problems in the company's consumer electronics sector, which greatly weighs on the company. In the process of restructuring the sectors, the withdrawal of the personal computer business has consumed a lot of costs.

Sony's financial report disappointed the shocking investors who always thought that Sony's restructuring plan could start to work in this fiscal year. Due to losses year after year, Sony had increased its restructuring efforts. Sony CEO Hirai was leading the company in a thorough restructuring, including selling Sony’s headquarters building in Manhattan for US$1.1 billion to ensure liquidity. In the last year, Sony had been very disappointed by repeated reductions in performance expectations though Sony expected the company to achieve profitability in the fiscal year just ended initially. However, it acknowledged that it may be difficult to achieve profitability in February and expects the loss to be as low as 110 billion yen. At the time, it also stated that it would cut down 5000 people in the computer and television sectors, sold their personal computer business and spun off their television division to form an independent company. Just two weeks ago, Sony also said that the loss in the previous fiscal year may exceed expectations. On the day before the financial report, Sony said that it will not pay bonuses to senior executives for the third consecutive year.

Previously, due to Sony's deteriorating status, rating agency Moody's has lowered Sony's credit rating to junk bonds and said that Sony needs to do a lot of job to repair the devastated balance sheet. After e-book business was withdrawn from North America, Sony said last week that its related services in Europe and Australia will also be closed. There are also reports that Sony will sell real estate in its Tokyo headquarter.

Indeed, Sony sold its Tokyo headquarter in early 2014, followed by on September 17, 2014, Sony Corporation stated that due to the continued sluggish business in the mobile communications industry, the company’s net loss in FY2014 may be 50 billion yen more than previously expected and even exceeded 230 billion yen (approximately 2.1 billion U.S. dollars).

This also means that in the seven fiscal years ending in FY2014, Sony failed to achieve profit for the six fiscal years. In fiscal year 2013, Sony’s net loss amounted to 128.4 billion yen.

3.2.2 Sony Recorded Huge Net Profit in 2015

Continual Streamlining department, Sony, eventually, witnessed its huge positive net profit in 2015.

Sony has announced its earnings for FY2015, and the vendor has recorded the largest profit increase since 2007. Net profit increased by 666.7% to 304.5 billion yen (2.7 billion U.S. dollars), and operating profit increased by 329% to 294.2 billion yen (2.6 billion U.S. dollars). The spurt in profits was due to the continued demand for PlayStation 4. The gaming division's operating revenue increased by 84.3% to 88.7 billion yen (785 million U.S. dollars), and net sales increased by 11% to 1.5 trillion yen (13.2 billion U.S. dollars).

Revenue fell 1.3% to 8.1 trillion yen ($71.6 billion), mainly due to the decline in sales in the smartphone division. Sony adopted a "strategic decision not to pursue scale to improve profitability," and the mobile division's sales fell by 20%. The mobile division's revenue was 1.1 trillion yen (US$9.7 billion), and its operating loss was 61.4 billion yen (US$5.44 billion).

What was going on with Sony over these years when Hirai possess the post as a president, followed by what efforts had Sony did, will be illustrated in the following thesis.

4. Financial Analysis of the Sony Corporation

The objective of this chapter is to analyse the financial performance according to the financial statements which include the balance sheet, the income statement and the cash flow statement publicized by Sony Corporation. With the following method, the common-size analysis, the pyramidal decompositions, the influence quantification and the sensitivity analysis, a clear financial situation will be introduced in detail.

4.1 Financial Reports Analysis

For balance sheet and income statement, common-size analysis converts each line of financial statement data into an easily comparable, or common-size, amount measured as a percentage. Formatting financial statement in this method reduces the bias that can occur and account for the analysis of a company over various time periods. For the cash flow statement, it is divided into two, using the horizontal analysis method, which is a comparison of their years of data analysis, and vertical analysis, which is a method to compare the proportion of each item.

4.1.1 Common-Size Analysis of Balance Sheet

These table and charts shows how an occasion of current assets is in the period from 2012 to 2016.

Table 4.1 Balance Sheet of Current Assets (Million Yen)

	2012	2013	2014	2015	2016
Cash and cash equivalents	2,771,311	3,422,573	3,180,825	3,712,456	2,888,073
Marketable securities	2,647,959	3,138,764	3,675,612	3,765,060	3,902,285
Notes and accounts receivable, trade	3,395,728	4,115,741	4,418,376	4,428,153	4,299,581
Allowance for doubtful accounts and sales returns	(263,297)	(296,736)	(331,508)	(349,626)	(226,501)
Inventories	3,110,298	3,390,861	3,185,775	3,153,400	2,902,315
Other receivables	728,505	917,668	1,057,538	1,059,083	941,299
Deferred income taxes	153,533	198,450	202,326	193,235	124,659
Prepaid expenses and other current assets	1,808,209	1,984,600	1,922,714	2,012,520	2,089,661

Table 4.2 Absolute Changes Compared to 2012 in Balance Sheet of Current Assets (Million Yen)

	2013	2014	2015	2016
Cash and cash equivalents	651,262	409,514	941,145	116,762
Marketable securities	490,805	1,027,653	1,117,101	1,254,326
Notes and accounts receivable, trade	720,013	1,022,648	1,032,425	903,853
Allowance for doubtful accounts and sales returns	(33,439)	(68,211)	(86,329)	36,796
Inventories	280,563	75,477	43,102	(207,983)
Other receivables	189,163	329,033	330,578	212,794
Deferred income taxes	44,917	48,793	39,702	(28,874)
Prepaid expenses and other current assets	176,391	114,505	204,311	281,452
Current Assets Total	651,262	409,514	941,145	116,762

Table 4.3 Developments of Items Compared to 2012 in Current Assets (%)

	2012	2013	2014	2015	2016
Cash and cash equivalents	100%	124%	115%	134%	104%
Marketable securities	100%	119%	139%	142%	147%
Notes and accounts receivable, trade	100%	121%	130%	130%	127%
Allowance for doubtful accounts and sales returns	100%	113%	126%	133%	86%
Inventories	100%	109%	102%	101%	93%
Other receivables	100%	126%	145%	145%	129%
Deferred income taxes	100%	129%	132%	126%	81%
Prepaid expenses and other current assets	100%	110%	106%	111%	116%
Current Assets Total	100%	124%	115%	134%	104%

Chart 4.1 Horizontal Common-size Analysis of Current Assets

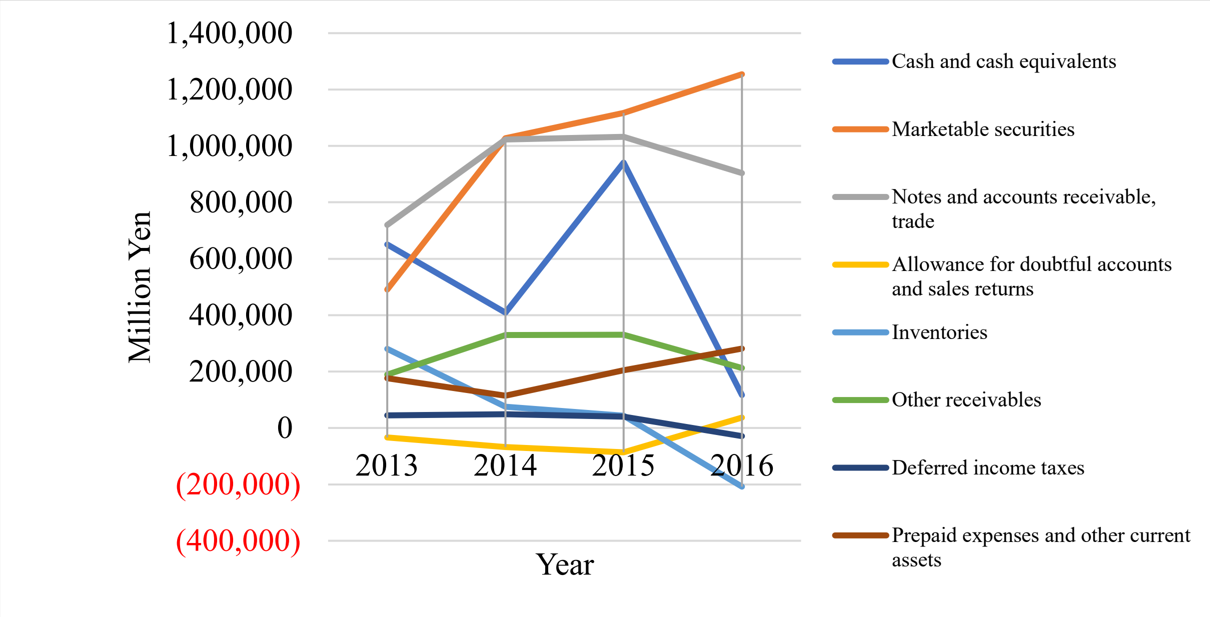
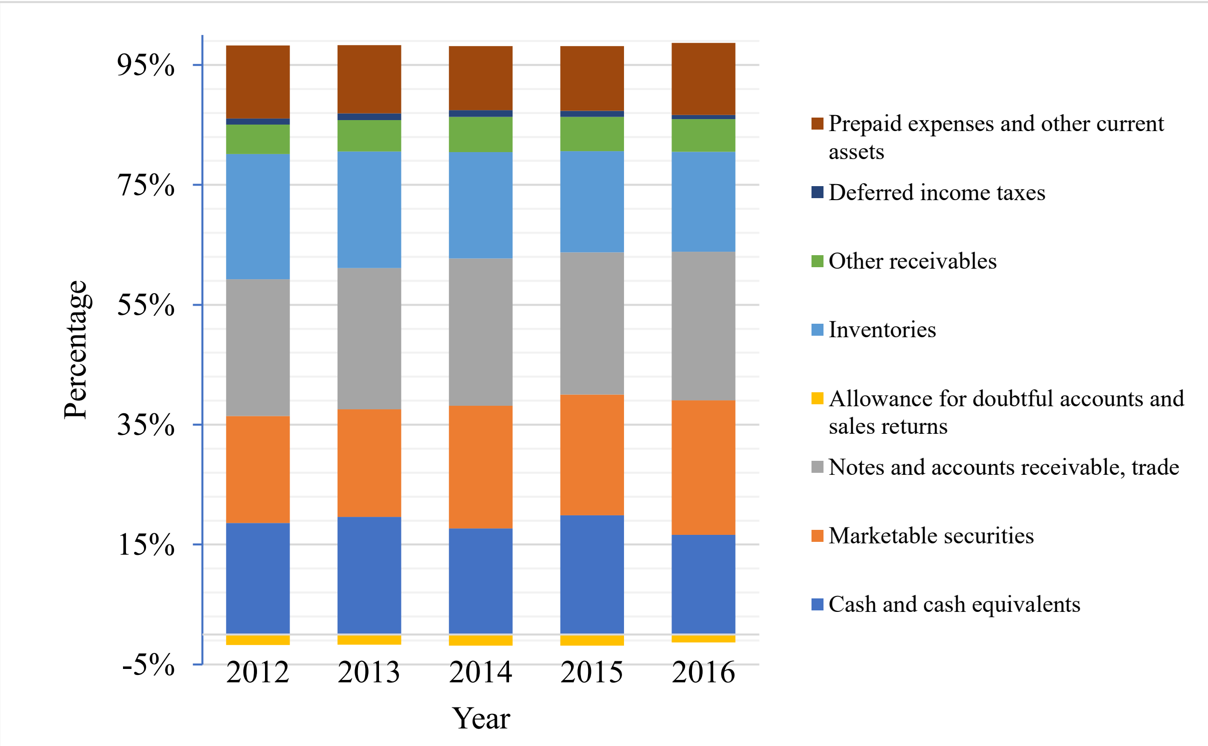


Chart 4.2 Vertical Common-size Analysis of Current Assets



Obviously, there is an increasing tendency in current assets total from 14.3million to 16.9million. Detailly speaking, in the *Chart 4.1* the amount of the prepaid expenses and other current assets, the deferred income taxes the other receivables and the allowance for doubtful accounts and sales returns fluctuated around these years. While the year between 2012 and 2016 experienced a marginal growing trend in the notes and accounts receivable, trade and marketable securities, which introduced that the sales of the company's products or services have encountered difficulties and began to relax sales policies. Meanwhile, the fluctuation in cash and cash equivalents showed the receivables turnover of every batch varied from each other. The figure of inventories reached a peak at 3390861 in 2013 then declined steadily in the rest of this period. Next, the Chart 4.2 showing the structure of current assets illustrated the inventories and the note and accounts receivables, trade took up the biggest proportion of the structure initially but in 2016 the note and accounts receivables, trade accounted for the first place while the inventories declined to the third place in the structure of current assets. The deferred income tax constituted the lowest rate during this period.

These table and charts below demonstrated the tangible part of fixed assets of Sony corporation.

Table 4.4 Balance Sheet of Property, Plant and Equipment (Million Yen)

	2012	2013	2014	2015	2016
Land	547,560	519,776	502,015	491,437	473,592
Buildings	3,207,719	2,969,002	2,744,773	2,677,197	2,589,892
Machinery and equipment	7,745,032	7,385,368	6,984,432	7,223,709	7,267,546
Construction in progress	164,211	175,632	152,035	268,871	191,873
Less-Accumulated depreciation	(8,058,745)	(7,787,830)	(7,389,363)	(7,422,254)	(7,451,113)
Property, plant and equipment Total	3,605,777	3,261,948	2,993,892	3,238,960	3,071,790

Table 4.5 Absolute Changes Compared to 2012 in Balance Sheet of Property, Plant and Equipment (Million Yen)

	2012	2013	2014	2015
Land	(27,784)	(45,545)	(56,123)	(73,968)
Buildings	(238,717)	(462,946)	(530,522)	(617,827)
Machinery and equipment	(359,664)	(760,600)	(521,323)	(477,486)
Construction in progress	11,421	(12,176)	104,660	27,662
Less-Accumulated depreciation	270,915	669,382	636,491	607,632

Table 4.6 Developments of Items Compared to 2012 in Property, Plant and Equipment (%)

	2012	2013	2014	2015	2016
Land	100%	95%	92%	90%	86%
Buildings	100%	93%	86%	83%	81%
Machinery and equipment	100%	95%	90%	93%	94%
Construction in progress	100%	107%	93%	164%	117%
Less-Accumulated depreciation	100%	97%	92%	92%	92%

Chart 4.3 Horizontal Common-size Analysis of Property, Plant and Equipment

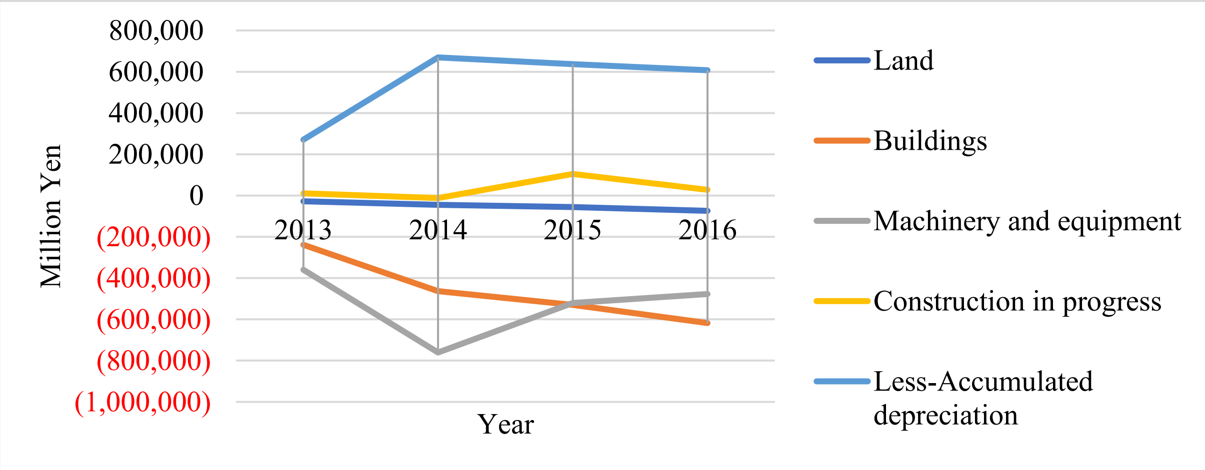
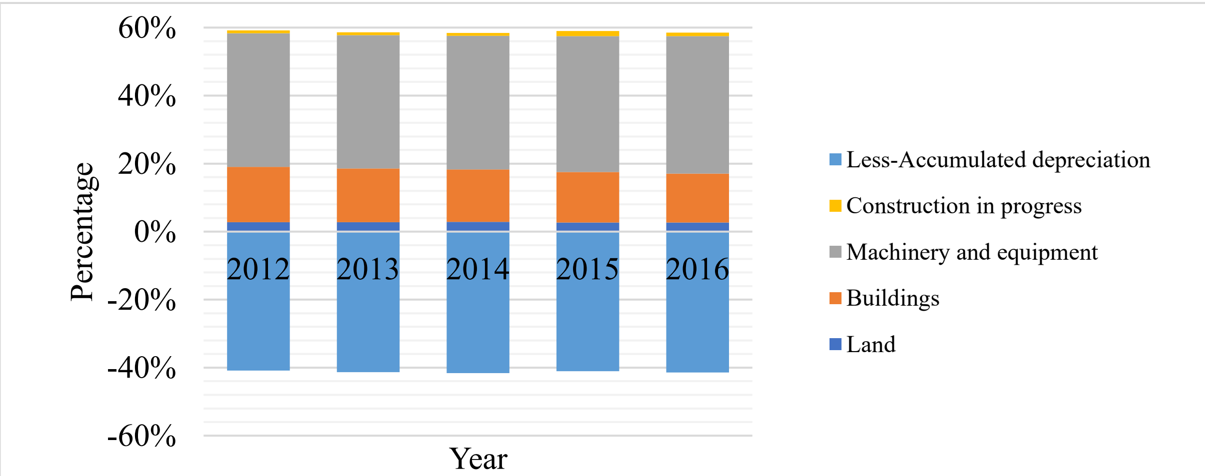


Chart 4.4 Vertical Common-size Analysis of Property, Plant and Equipment



Except the rebound of number of total tangible assets in 2015 which is as a result of the growth in amount of machinery, equipment and construction in progress, the property, plant and equipment total saw a falling trend amongst these years. From 2010, Sony Co, started to outsource its television business processes to other company in Japan or in China, correspondingly the fixed assets, land, building, machinery and equipment etc., dropped from 0.54million to 0.47million, from 3.2million to 2.5million, from 7.7million to 7.2million, respectively. Only the construction in progress part grew sometimes and peaked at 0.26million in 2015 then fell again. Ever though the outsourced Sony has, the machinery and equipment to produce still took up the largest percentage in the structure of fixed assets. It is said that Sony intended to enlarge its outsource scale to cut the unnecessary costs in the future, even the production of television, the vital business of Sony, due to deficit over these years which will refer in the following part of the analysis.

There are the table and charts showing the financial assets of Sony. The assets of affiliated companies had a dramatical increase in 2013, which double its amount in this year however, saw a slight reducing in the following years.

Table 4.7 Balance Sheet of Investments and Advances (Million Yen)

	2012	2013	2014	2015	2016
Affiliated companies	392,802	736,591	714,864	667,933	628,169
Securities investments and other	27,086,008	29,868,915	32,296,532	34,957,197	38,438,211
Investments and advances Total	27,478,810	30,605,506	33,011,396	35,625,130	39,066,380

Table 4.8 Absolute Changes Compared to 2012 in Balance Sheet of Investments and Advances (Million Yen)

	2013	2014	2015	2016
Affiliated companies	343,789	322,062	275,131	235,367
Securities investments and other	2,782,907	5,210,524	7,871,189	11,352,203

Table 4.9 Developments of Items Compared to 2012 in Investments and Advances (%)

	2012	2013	2014	2015	2016
Affiliated companies	100%	188%	182%	170%	160%
Securities investments and other	100%	110%	119%	129%	142%

Chart 4.5 Horizontal Common-size Analysis of Investments and Advances

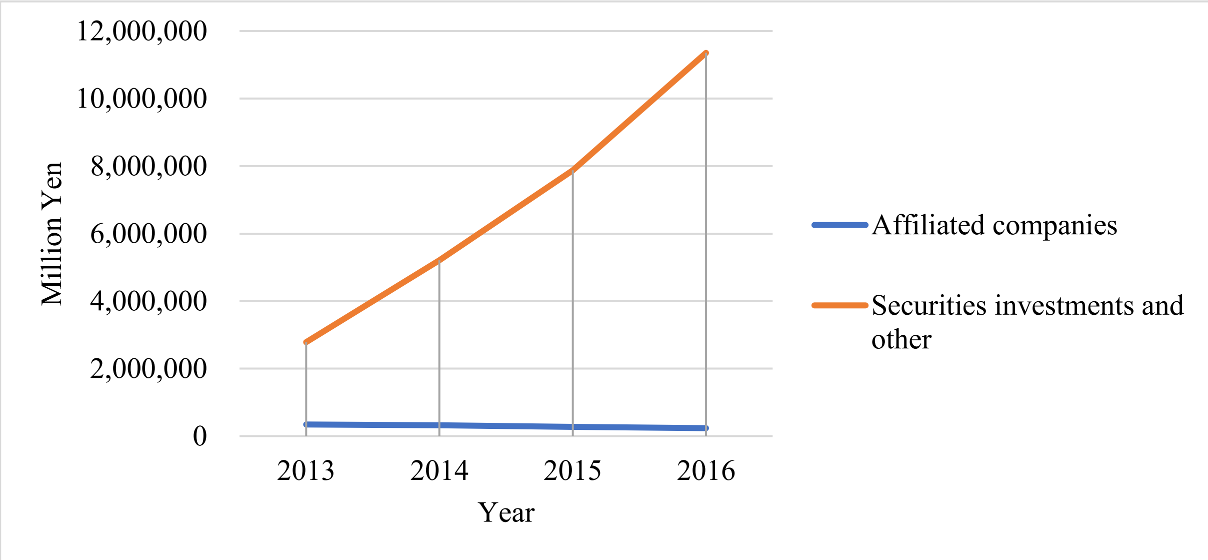
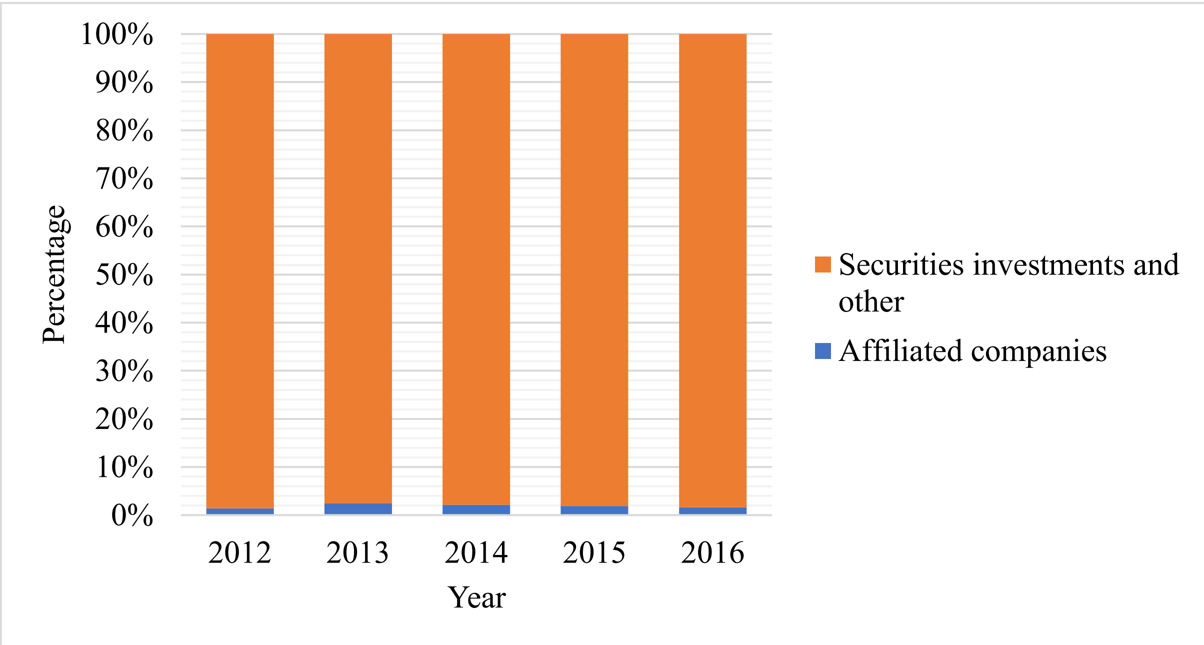


Chart 4.6 Vertical Common-size Analysis of Investments and Advances



This circumstance is totally different with the assets of securities investments and other which stably grow from approximate 27million to 38.4million in these years. Furthermore, this part, the investment, took up a tremendous ratio in the structure of investment and advances, with 98%. In 2003, Sony established the Sony Financial Holding which took charge of the investments and was also the most profitable segments in Sony Corporation, to conduct the finance business.

In the financial statement, the film costs are single part that did not belong to any other section, which showed this field is a special one with unique meanings in Sony Group.

Table 4.10 Balance Sheet of Film costs (Million Yen)

	2012	2013	2014	2015	2016
Film costs	1037850	1222457	1203147	1396747	1337338

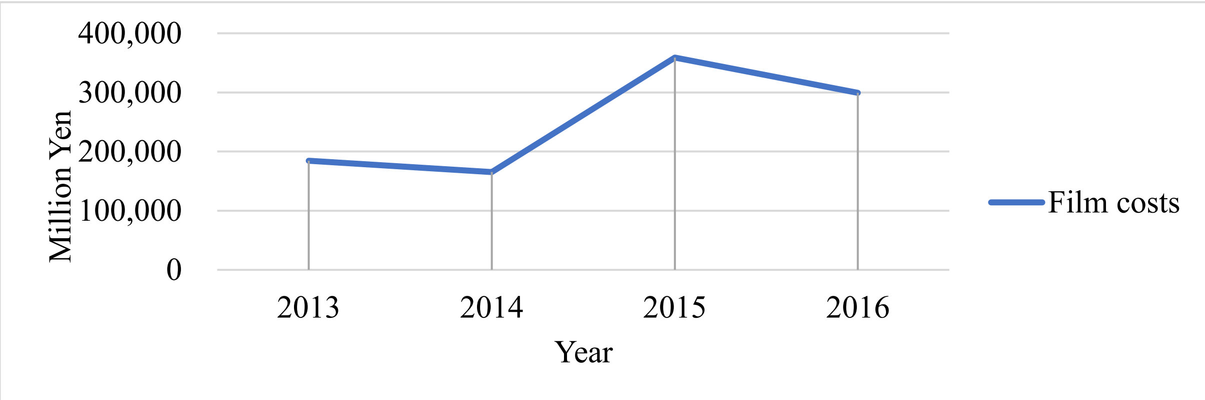
Table 4.11 Absolute Changes Compared to 2012 in Balance Sheet of Film Cost (Million Yen)

	2013	2014	2015	2016
Film costs	184,607	165,297	358,897	299,488

Table 4.12 Developments of Items Compared to 2012 in Film Cost (%)

	2012	2013	2014	2015	2016
Film costs	100%	118%	116%	135%	129%

Chart 4.7 Horizontal Common-size Analysis of Film Costs



Thus, the figure of film costs rose gradually around these years showing this is a prosperous sector in Sony Group.

From the *Table 4.13*, it showed Sony suffered from a rough period over these years in intangibles asset field.

Table 4.13 Balance Sheet of Other Assets (Million Yen)

	2012	2013	2014	2015	2016
Intangibles, net	2,614,215	2,780,736	2,633,109	2,534,352	2,313,916
Goodwill	2,403,366	2,738,682	2,350,051	2,438,587	2,158,429
Deferred insurance acquisition costs	1,821,789	1,940,087	2,056,239	2,109,149	2,135,856
Deferred income taxes	406,324	433,882	380,081	345,822	395,108
Other	749,781	851,052	907,230	1,039,629	1,141,557
Other assets Total	7,995,475	8,744,439	8,326,710	8,467,539	8,144,866

Table 4.14 Absolute Changes Compared to 2012 in Balance Sheet of Other Assets (Million Yen)

	2013	2014	2015	2016
Intangibles, net	166,521	18,894	(79,863)	(300,299)
Goodwill	335,316	(53,315)	35,221	(244,937)
Deferred insurance acquisition costs	118,298	234,450	287,360	314,067
Deferred income taxes	27,558	(26,243)	(60,502)	(11,216)
Other	101,271	157,449	289,848	391,776

Table 4.15 Developments of Items Compared to 2012 in Other Assets (%)

	2012	2013	2014	2015	2016
Intangibles, net	100%	106%	101%	97%	89%
Goodwill	100%	114%	98%	101%	90%
Deferred insurance acquisition costs	100%	106%	113%	116%	117%
Deferred income taxes	100%	107%	94%	85%	97%
Other	100%	114%	121%	139%	152%

Chart 4.8 Horizontal Common-size Analysis of Other Assets

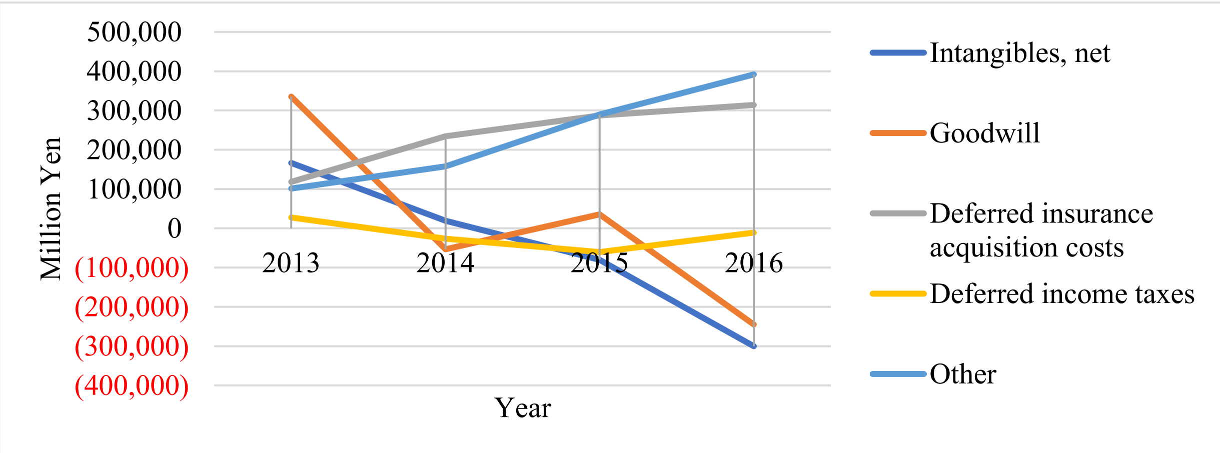
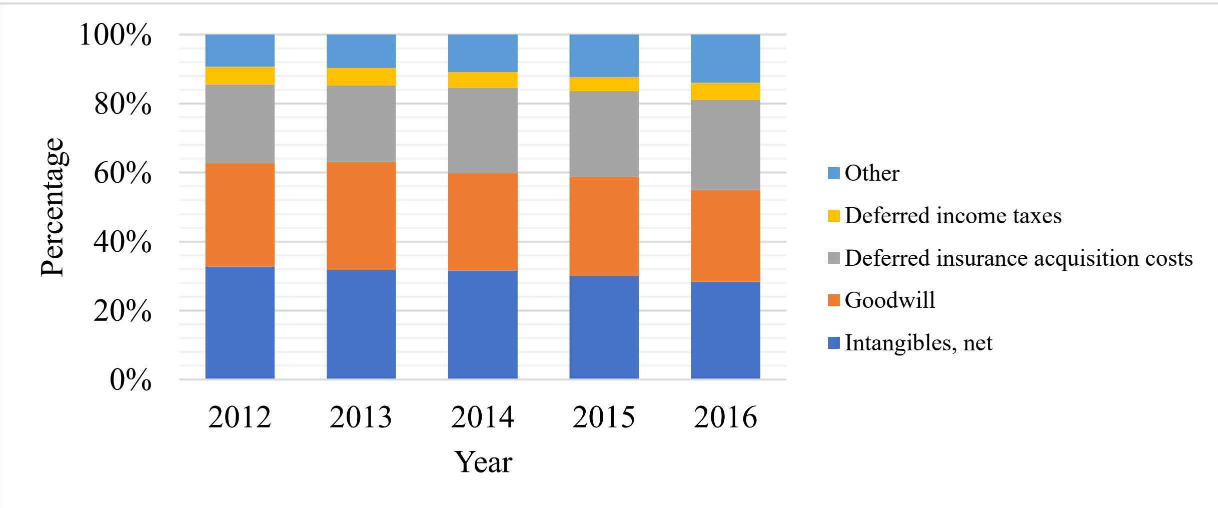


Chart 4.9 Vertical Common-size Analysis of Other Assets



There is a joke that Sony, the company which developed the television technology, earned a big fortune in insurance. In the Charts, therefore, the deferred insurance acquisition costs, the costs when a company defers the sales costs that are associated with acquiring a new customer over the term of the insurance contract, increased steadily and it occupied a considerable percentage in the structure of other assets. It is not optimistic in the intangibles, net and goodwill because of its decrease from 2013 to 2016, which to some extent highlighted the core technology of Sony, though, these two parts still took up a significant proportion.

When focus on the current liability *(table 4.16)* below, everyone can answer that why a joke that ‘Does Sony go bankrupt today?’ did not come true, that could be attributed to a profitable segment in Sony, the financial business.

Table 4.16 Balance Sheet of Current Liability (Million Yen)

	2012	2013	2014	2015	2016
Short-term borrowings	804,404	413,779	425,787	763,860	1,270,441
Current portion of long-term debt	725,255	1,267,842	587,286	627,440	459,935
Notes and accounts payable, trade	2,590,510	3,183,047	3,060,787	2,894,034	2,512,628
Accounts payable, other and accrued expenses	4,034,648	4,513,535	5,075,407	5,514,344	5,185,101
Accrued income and other taxes	267,494	405,308	487,615	446,699	446,386
Deposits from customers in the banking business	7,311,690	7,409,644	7,390,982	7,431,303	8,033,923
Other	1,823,332	2,109,105	2,280,252	2,205,495	2,168,841
Current liabilities Total	17,557,333	19,302,260	19,308,116	19,883,175	20,077,255

Table 4.17 Absolute Changes Compared to 2012 in Balance Sheet of Current Liability (Million Yen)

	2013	2014	2015	2016
Short-term borrowings	(390,625)	(378,617)	(40,544)	466,037

Current portion of long-term debt	542,587	(137,969)	(97,815)	(265,320)
Notes and accounts payable, trade	592,537	470,277	303,524	(77,882)
Accounts payable, other and accrued expenses	478,887	1,040,759	1,479,696	1,150,453
Accrued income and other taxes	137,814	220,121	179,205	178,892
Deposits from customers in the banking business	97,954	79,292	119,613	722,233
Other	285,773	456,920	382,163	345,509

Table 4.18 Developments of Items Compared to 2012 in Current Liability (%)

	2012	2013	2014	2015	2016
Short-term borrowings	100%	51%	53%	95%	158%
Current portion of long-term debt	100%	175%	81%	87%	63%
Notes and accounts payable, trade	100%	123%	118%	112%	97%
Accounts payable, other and accrued expenses	100%	112%	126%	137%	129%
Accrued income and other taxes	100%	152%	182%	167%	167%
Deposits from customers in the banking business	100%	101%	101%	102%	110%
Other	100%	116%	125%	121%	119%

Chart 4.10 Horizontal Common-size Analysis of Current Liability

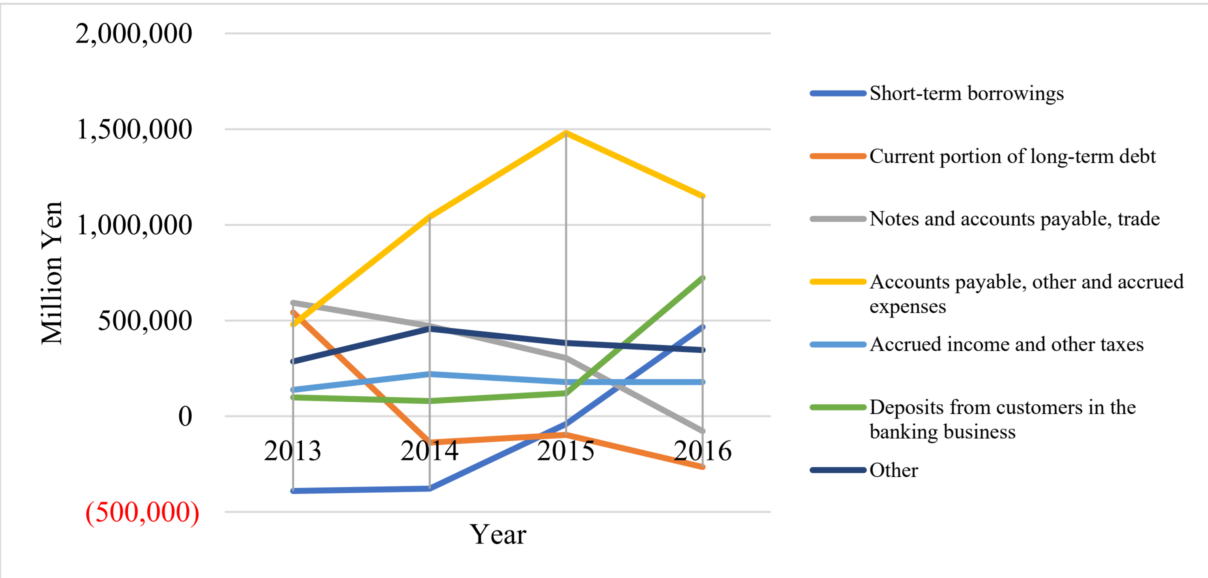
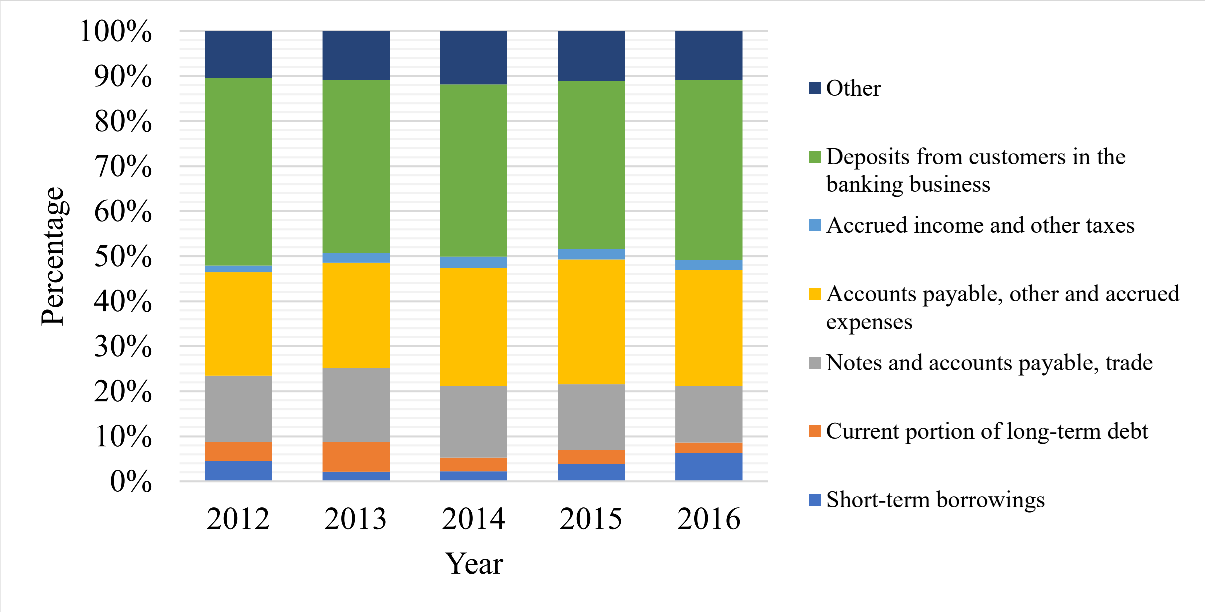


Chart 4.11 The Vertical Common-size Analysis of Current Liability



Even though the amount of sale came from the consumer electronics segment ranked the first place in the income statement, the Sony Financial holdings and its technology of image sensor provided with the most powerful profitability. The Sony Financial holdings operated the traditional business, like life insurance, non-life insurance and banking business based on absorbing the deposit and leading loans, which only focused on domestic market. To a large extent, hardly can say this phenomenon implies the development in financial field, instead, it shows the decline in the field of high-tech products in Sony even in the entire Japan. The proportion of account payable, other and accrued expenses, on the other hand, introduced that Sony paid attention to research and develop the new products and send them into the production processes continuously despite the decrease in the amount of it in 2015.

As is mentioned before, still the financial business contributed to enormous long-term liabilities rather than the common items such as loans, which is showed in these table and charts.

Table 4.19 Balance Sheet of Long Term Liability (Million Yen)

	2012	2013	2014	2015	2016
Long-term debt	3,537,974	3,718,917	3,028,667	2,728,322	2,573,473
Accrued pension and severance costs	1,224,039	1,231,656	1,146,259	1,356,117	1,744,529

Deferred income taxes	1,250,978	1,532,204	1,737,304	1,740,532	1,753,021
Future insurance policy benefits and other	13,636,928	14,867,161	16,054,248	17,429,637	18,885,846
Policyholders' account in the life insurance business	6,326,843	7,628,049	8,683,106	9,444,356	10,037,196
Other	1,053,802	1,214,372	1,236,379	1,279,054	1,222,131
Long term liabilities Total	27,030,564	30,192,359	31,885,963	33,978,018	36,216,196

Table 4.20 Absolute Changes Compared to 2012 in Balance Sheet of Long Term Liability (Million Yen)

	2013	2014	2015	2016
Long-term debt	180,943	(509,307)	(809,652)	(964,501)
Accrued pension and severance costs	7,617	(77,780)	132,078	520,490
Deferred income taxes	281,226	486,326	489,554	502,043
Future insurance policy benefits and other	1,230,233	2,417,320	3,792,709	5,248,918
Policyholders' account in the life insurance business	1,301,206	2,356,263	3,117,513	3,710,353
Other	160,570	182,577	225,252	168,329

Table 4.21 Developments of Items Compared to 2012 in Long Term Liability (%)

	2012	2013	2014	2015	2016
Long-term debt	100%	105%	86%	77%	73%
Accrued pension and severance costs	100%	101%	94%	111%	143%
Deferred income taxes	100%	122%	139%	139%	140%
Future insurance policy benefits and other	100%	109%	118%	128%	138%
Policyholders' account in the life insurance business	100%	121%	137%	149%	159%

Other	100%	115%	117%	121%	116%

Chart 4.12 Horizontal Common-size Analysis of Long Term Liability

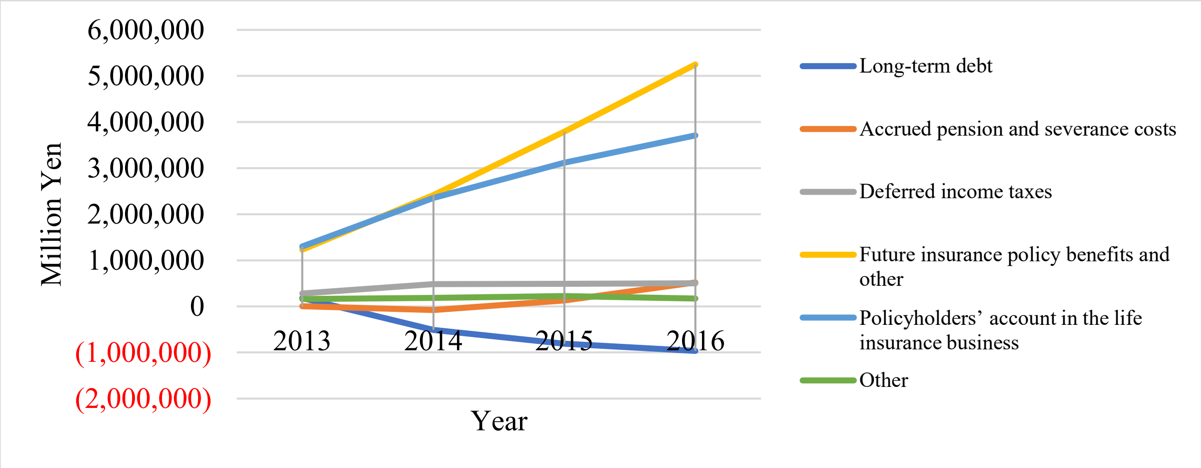
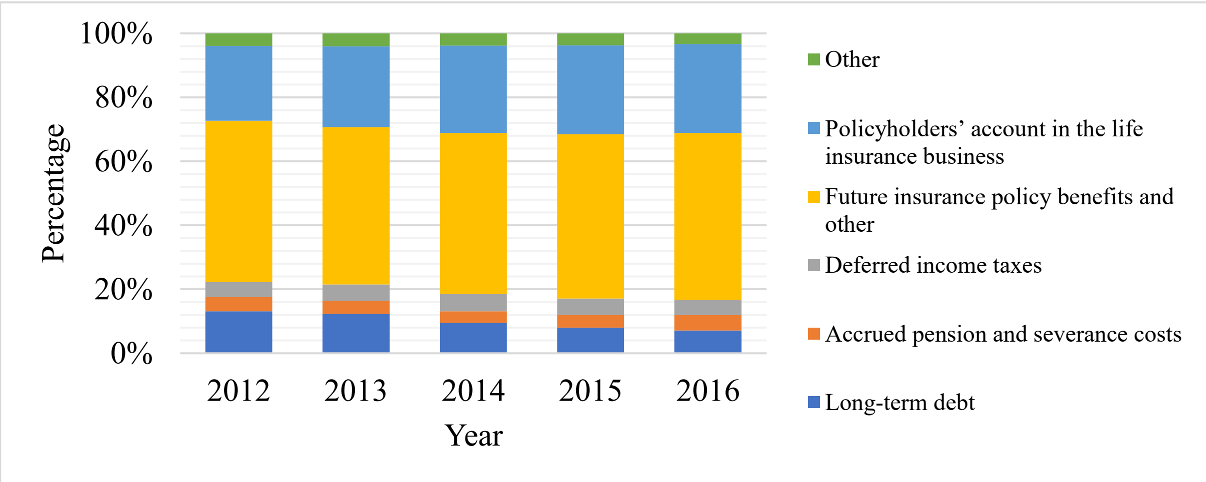


Chart 4.13 Vertical Common-size Analysis of Long Term Liability



The future insurance policy benefits and other rose gradually and the policyholders' account in the life insurance business climbed from 6million to 10million. These two accounted for about 90% in long-term liabilities over these years. Now we could image what part of liabilities belonged to the other part.

The last item in the balance sheet is the stockholders' equity. The table and charts below demonstrated how the Sony's equity is made up.

Table 4.22 Balance Sheet of Stockholders' Equity (Million Yen)

	2012	2013	2014	2015	2016
Common stock	2,523,692	2,565,028	2,751,515	3,283,760	3,439,455
Additional paid-in capital	4,525,384	4,486,416	4,665,481	5,161,283	5,142,207
Retained earnings	4,188,411	4,194,953	3,532,175	3,786,957	3,860,926
Accumulated other comprehensive income	(3,227,201)	(2,046,840)	(1,586,087)	(1,943,769)	(2,756,954)
Treasury stock, at cost	(18,108)	(17,284)	(16,861)	(16,961)	(17,182)
Sony Corporation's stockholders' equity: Total	7,992,178	9,182,273	9,346,223	10,271,270	9,668,452

Table 4.23 Absolute Changes Compared to 2012 in Balance Sheet of Stockholders' Equity (Million Yen)

	2013	2014	2015	2016
Common stock	41,336	227,823	760,068	915,763
Additional paid-in capital	(38,968)	140,097	635,899	616,823
Retained earnings	6,542	(656,236)	(401,454)	(327,485)
Accumulated other comprehensive income	1,180,361	1,641,114	1,283,432	470,247
Treasury stock, at cost	824	1,247	1,147	926

Table 4.24 Developments of Items Compared to 2012 in Stockholders' Equity (%)

	2012	2013	2014	2015	2016
Common stock	100%	102%	109%	130%	136%
Additional paid-in capital	100%	99%	103%	114%	114%
Retained earnings	100%	100%	84%	90%	92%
Accumulated other comprehensive income	100%	63%	49%	60%	85%
Treasury stock, at cost	100%	95%	93%	94%	95%

Chart 4.14 Horizontal Common-size Analysis of Stockholders' Equity

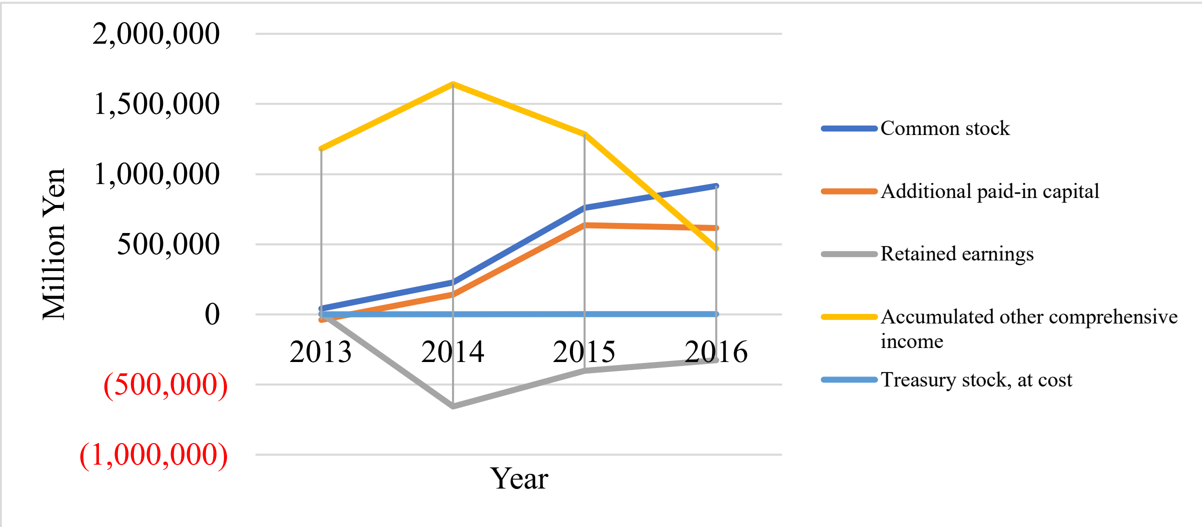
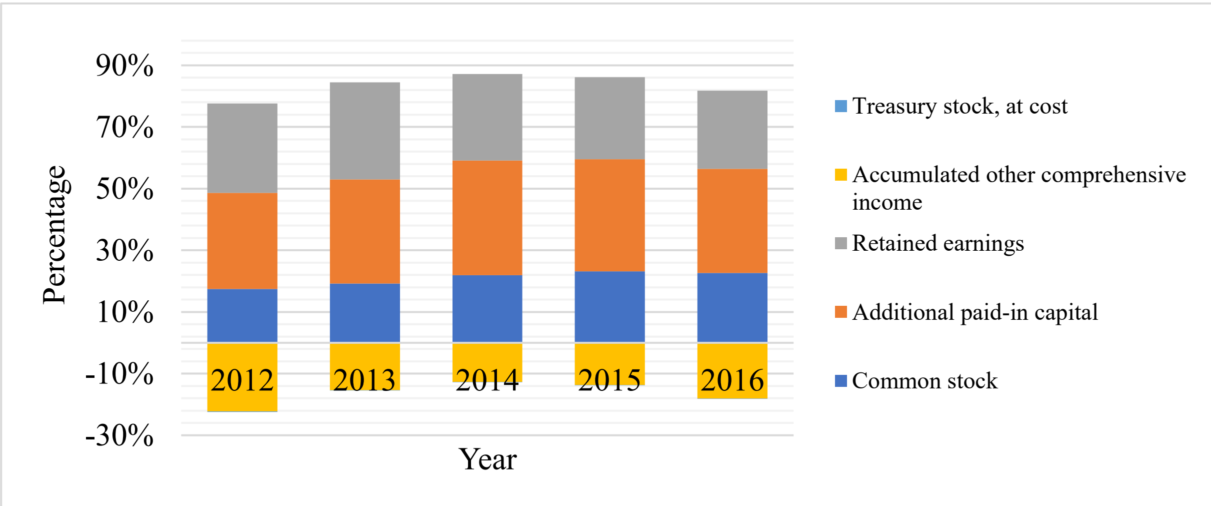


Chart 4.15 Vertical Common-size Analysis of Stockholders' Equity



The negative number of accumulated other comprehensive income and treasury stock, at cost, which always fluctuated below zero, showed the loss situation. Yet good news is the additional paid-in capital took up the first place, which illustrated the investors had confidence toward Sony as always even though Sony have suffered from a constantly loss during these years. Sony, the top brand in field of technology, is still vital in the market.

4.1.2 Common-size Analysis of Income statement

As a technology company and a manufacturing company, Sony showed us a satisfying sale, moreover, the revenue of selling goods is regarding as the significant resource to make profit from the point of the income table.

Table 4.25 Sales and Operating Revenue of Sony (Million Yen)

	2012	2013	2014	2015	2016
Net sales	5,691,216	6,682,274	7,035,537	6,949,357	6,443,328
Financial services revenue	999,276	988,944	1,077,604	1,066,319	1,080,284
Other operating revenue	105,012	96,048	102,739	90,036	79,638
Sales and operating revenue Total	6,795,504	7,767,266	8,215,880	8,105,712	7,603,250

Table 4.26 Absolute Changes Compared to 2012 in Sales and Operating Revenue of Sony (Million Yen)

	2013	2014	2015	2016
Net sales	991,058	1,344,321	1,258,141	752,112
Financial services revenue	(10,332)	78,328	67,043	81,008
Other operating revenue	(8,964)	(2,273)	(14,976)	(25,374)

Table 4.27 Developments of Items Compared to 2012 in Sales and Operating Revenue (%)

	2012	2013	2014	2015	2016
Net sales	100%	117%	124%	122%	113%
Financial services revenue	100%	99%	108%	107%	108%
Other operating revenue	100%	91%	98%	86%	76%

Chart 4.16 Horizontal Common-size Analysis of Sales and Operating Revenue

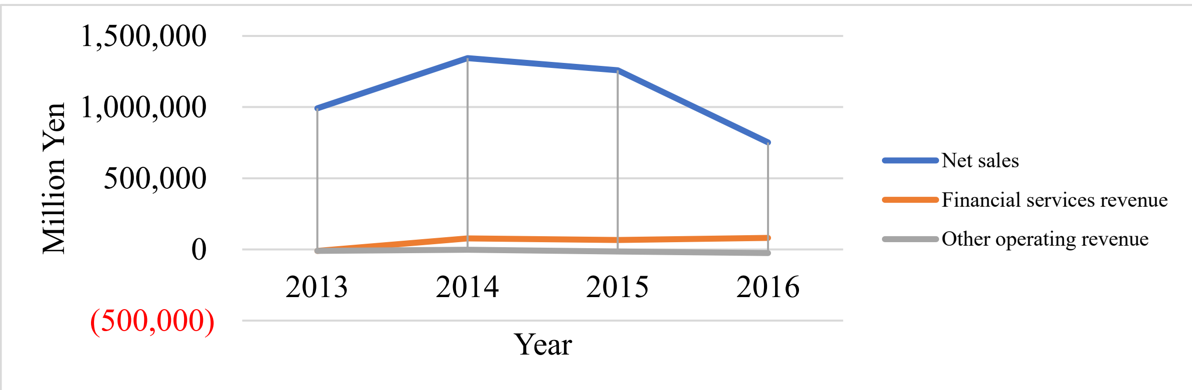


Chart 4.17 Vertical Common-size Analysis of Sales and Operating Revenue

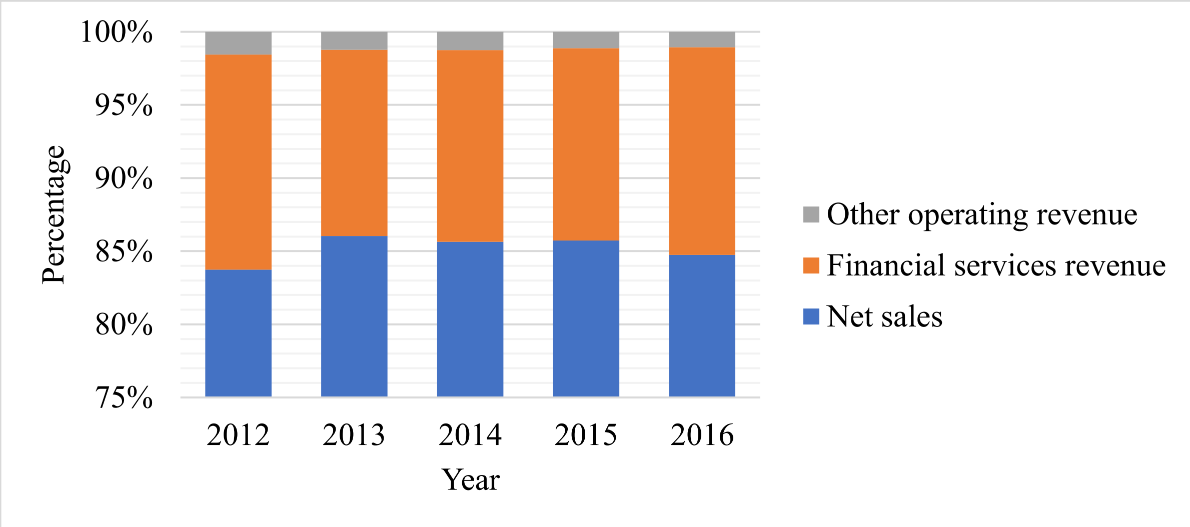


Table 4.28 Other Income of Sony (Million Yen)

	2012	2013	2014	2015	2016
Interest and dividends	21,987	16,652	12,887	12,455	11,459
Gain on sale of securities investments, net	41,756	11,433	8,714	52,068	234
Foreign exchange gain, net	5,422	6,191	0	0	1,615
Other	4,913	14,367	3,475	2,326	2,734
Other income Total	74,078	48,643	25,076	66,849	16,042

Table 4.29 Absolute Changes Compared to 2012 in Other Income (Million Yen)

	2013	2014	2015	2016
Interest and dividends	(5,335)	(9,100)	(9,532)	(10,528)
Gain on sale of securities investments, net	(30,323)	(33,042)	10,312	(41,522)
Foreign exchange gain, net	769	(5,422)	(5,422)	(3,807)
Other	9,454	(1,438)	(2,587)	(2,179)

Table 4.30 Developments of Items Compared to 2012 in Other Income (%)

	2012	2013	2014	2015	2016
Interest and dividends	100%	76%	59%	57%	52%
Gain on sale of securities investments, net	100%	27%	21%	125%	1%
Foreign exchange gain, net	100%	114%	0%	0%	30%
Other	100%	292%	71%	47%	56%

Chart 4.18 Horizontal Common-size Analysis of Other Income

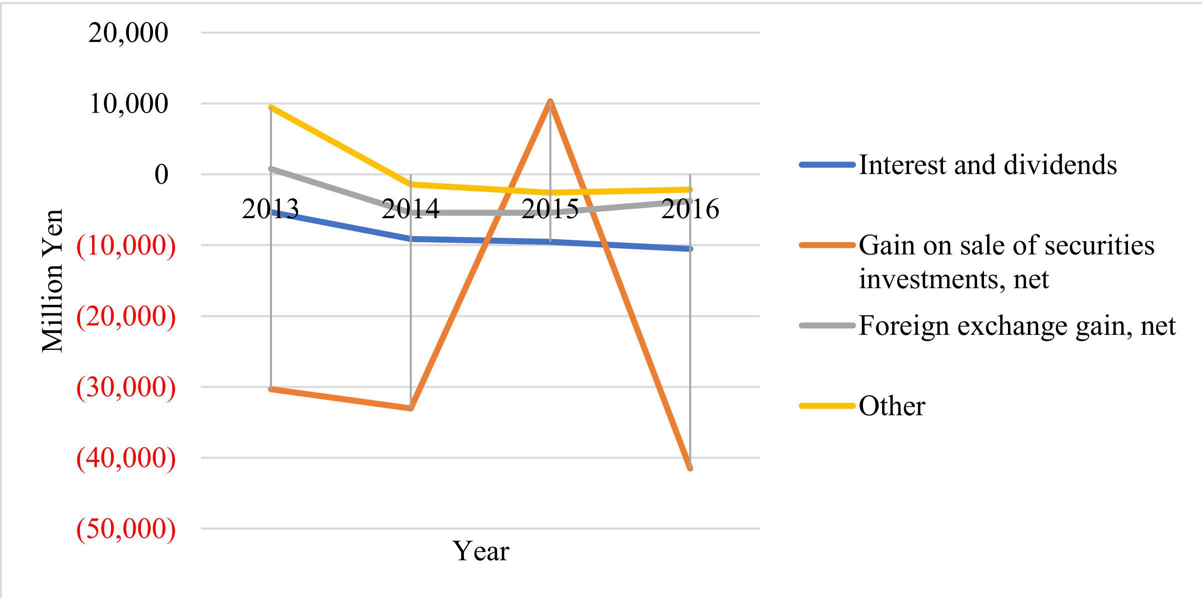
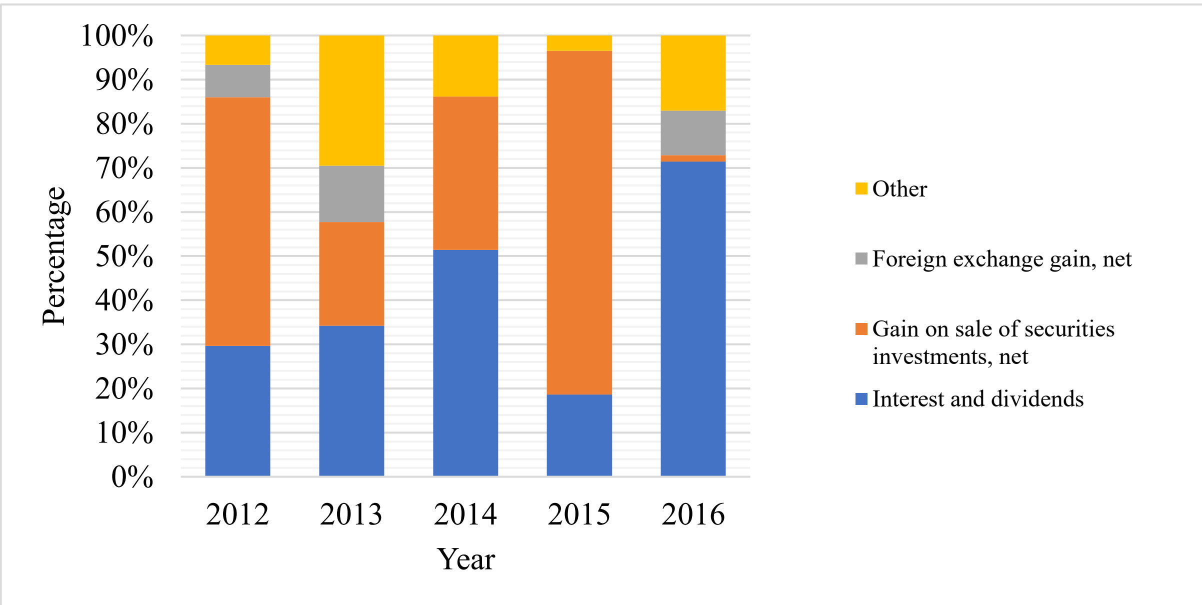


Chart 4.19 Vertical Common-size Analysis of Other Income



However, when looking at the cost table, the cost of goods, whatever the developing process, the manufacturing process of managing process, also made up a majority of the structure of costs.

Table 4.31 Costs and Expenses of Sony (Million Yen)

	2012	2013	2014	2015	2016
Cost of sales	4,485,425	5,140,053	5,275,144	5,166,894	4,753,010
Selling, general and administrative	1,457,626	1,728,520	1,811,461	1,691,930	1,505,956
Financial services expenses	854,221	816,158	882,990	907,758	910,144
Other operating (income) expense, net	(235,219)	48,666	181,658	47,171	149,001
Costs and expenses Total	6,562,053	7,733,397	8,151,253	7,813,753	7,318,111

Table 4.32 Absolute Changes Compared to 2012 in Costs and Expenses (Million Yen)

	2013	2014	2015	2016
Cost of sales	654,628	789,719	681,469	267,585
Selling, general and administrative	270,894	353,835	234,304	48,330
Financial services expenses	(38,063)	28,769	53,537	55,923
Other operating (income) expense, net	283,885	416,877	282,390	384,220

Table 4.33 Developments of Items Compared to 2012 in Costs and Expenses (%)

	2012	2013	2014	2015	2016
Cost of sales	100%	115%	118%	115%	106%
Selling, general and administrative	100%	119%	124%	116%	103%
Financial services expenses	100%	96%	103%	106%	107%
Other operating (income) expense, net	100%	-21%	-77%	-20%	-63%

Chart 4.20 Horizontal Common-size Analysis of Costs and Expenses

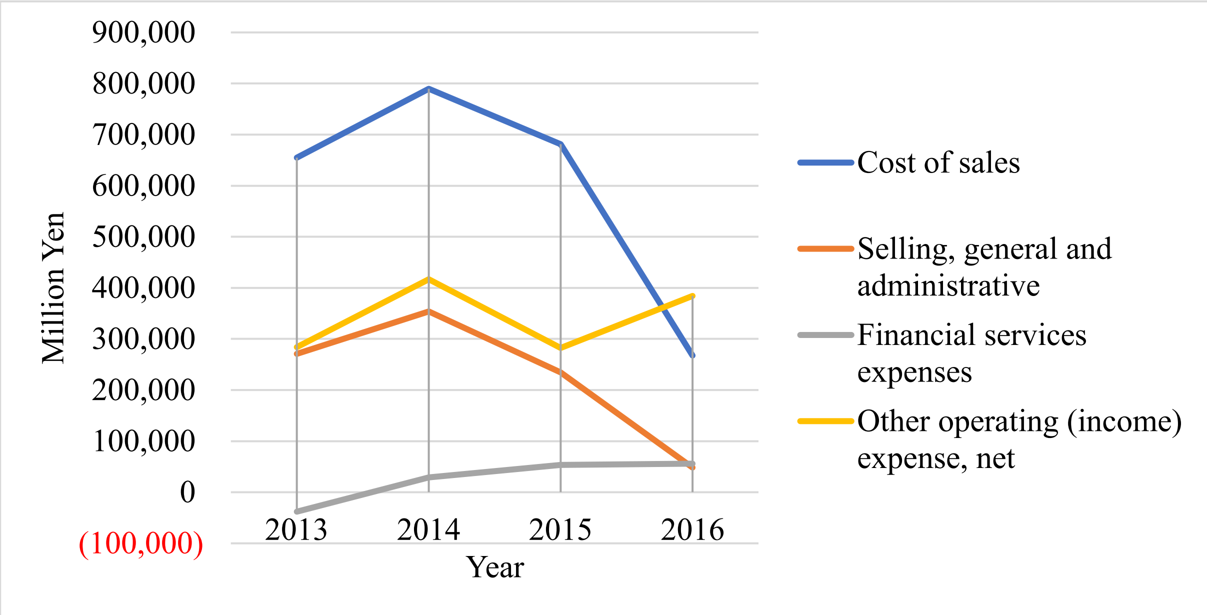
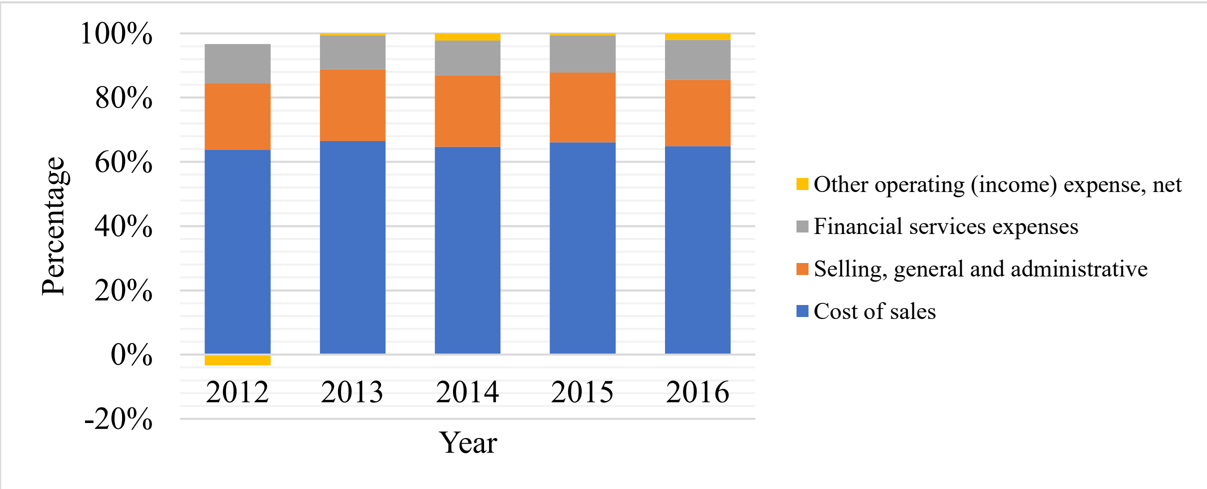


Chart 4.21 Vertical Common-size Analysis of Costs and Expenses



Sometimes the costs exceeded the revenue among these years contributing to the loss. These 5 years witnessed a dropping trend in every single item in the income of the income statement including interest, dividends, gain on sale of securities and foreign exchange gain. Sony started to sale some financial assets. Furthermore, Sony sell its building to finance more money to support its survival. Compared with the Chart 4.1, it is obvious that there a coincident part in Chart 4.21, the blue line. The tendency of these two lines is so similar that everyone can speculate there actually is no different between these two lines. As is mentioned before, during these years, Sony was in the loss situation. In addition, affected by the Japanese downward economic pressure, Sony suffered from the depreciation of Japanese Yen and securities investments.

4.1.3 Analysis of Cash Flow Statement

Because Sony is a company with complex segments and departments, this part will concentrate on several significant components in the cash flow statement.

Table 4.34 Cash Inflows from Operating Activities (Million Yen)

	2012	2013	2014	2015	2016
Net income (loss)	101,686			209,715	127,561
Depreciation and amortization, including amortization of deferred insurance acquisition costs	376,735	376,695	354,624	397,091	327,048
Amortization of film costs	208,051	285,673	272,941	299,587	297,505
Accrual for pension and severance costs, less payments	1,232				9,297
Other operating (income) expense, net			9,638	47,171	149,001
(Gain) loss on sale or devaluation of securities investments, net		48,666	181,658		7,404
(Gain) loss on revaluation of marketable securities held in the financial services business for trading purposes, net				44,821	
(Gain) loss on revaluation or impairment of securities investments held in the financial services business, net				2,653	47
Deferred income taxes				211	23,798
Equity in net (income) loss of affiliated companies, net of dividends	65,771		7,982	5,045	4,409
(Increase) decrease in notes and accounts receivable, trade	8,819	10,022	2,269		
(Increase) decrease in inventories	55,712		33,843		11,199
(Increase) decrease in film costs	56,987	20,248	113,485		
Increase (decrease) in notes and accounts payable, trade					
Increase (decrease) in accrued income and other taxes		103,379			26,701

Increase (decrease) in future insurance policy benefits and other	12,446			403,392	433,803
(Increase) decrease in deferred insurance acquisition costs	434,786	391,541	460,336		
(Increase) decrease in marketable securities held in the financial services business for trading purposes					
(Increase) decrease in other current assets				21,299	
Increase (decrease) in other current liabilities	91,762		16,276		79,114
Other		58,656	86,718	45,457	
Net cash provided by (used in) operating activities		14,147		749,089	809,262

Chart 4.22 Horizontal Analysis of Cash Inflows from Operating Activities

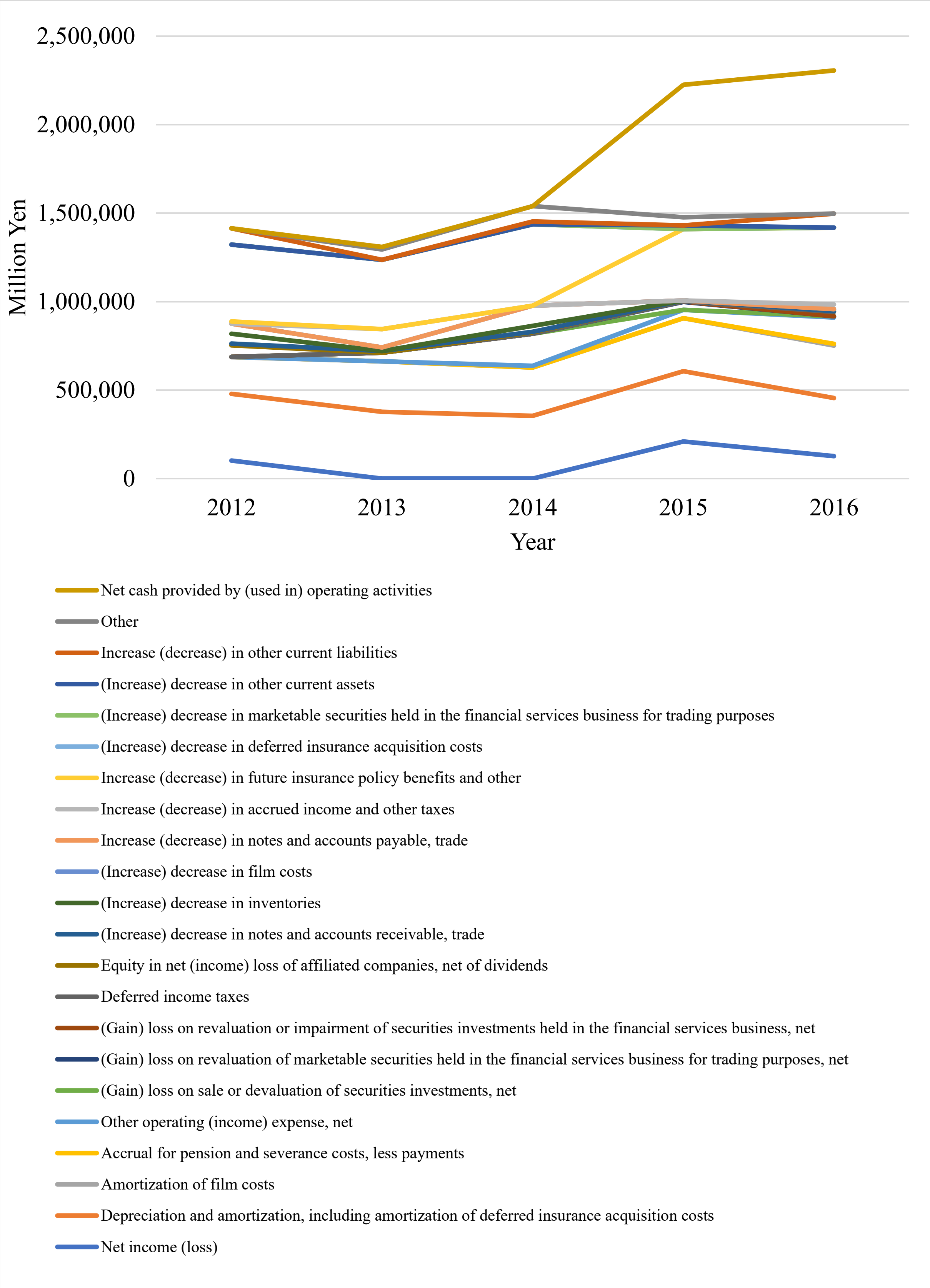
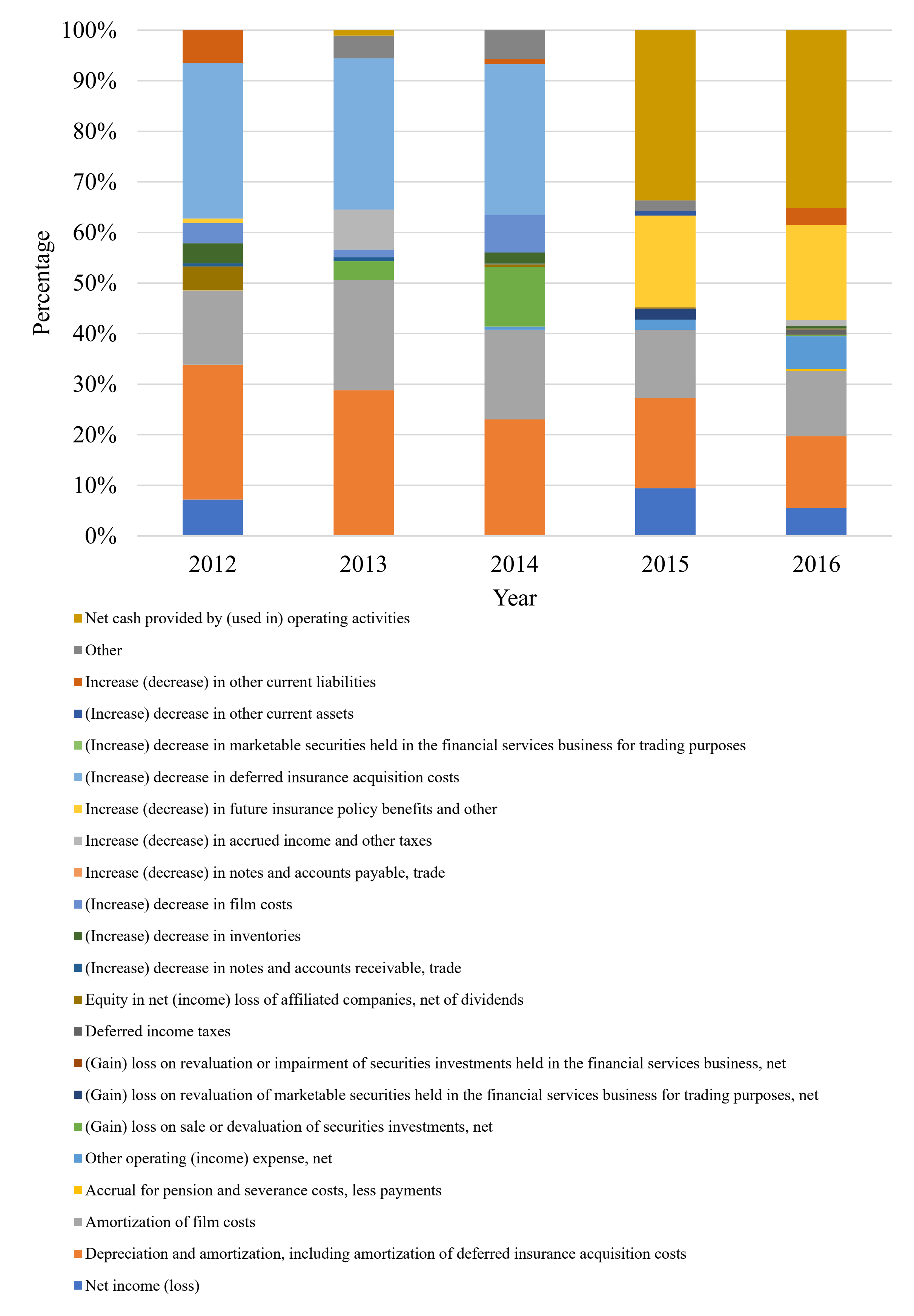


Chart 4.23 Vertical Analysis of Cash Inflows from Operating Activities



If viewing this statement, an obvious trend was that the data experienced a roller coaster-style up and down. Every single item started to fall in the 2013 especially in the elements of current assets and current liabilities indicating Sony had repaid the loan besides, there is a dramatical decline in the net income, which turned into the outflow in 2013 and 2014, revealing the profitability of Sony was not in an optimistic status. After that, in 2014, there was a raise again in each component but unfortunately, the performance of future insurance policy and the accrual for pension, which I have explained before, was outstanding. Sony did not have a remarkable result in the area in which it should perform well. While the structure of the cash inflow demonstrated the same outcome that it was unconscious that the proportion of insurance business was in the structure of cash inflow in the first three year, in 2015 and 2016, however, these two items took up a considerable ratio of approximate 50%.

These charts of cash outflows below presented a contrast tendency with the one of cash inflows, especially the horizontal analysis of cash outflows from operating activities.

Table 4.35 Cash Outflows from Operating Activities (Million Yen)

	2012	2013	2014	2015	2016
Net income (loss)		68,841	49,004		
Depreciation and amortization, including amortization of deferred insurance acquisition costs					
Amortization of film costs					
Accrual for pension and severance costs, less payments				6,383	
Other operating (income) expense, net	16,669	38,131			
(Gain) loss on sale or devaluation of securities investments, net	235,219			48,857	
(Gain) loss on revaluation of marketable securities held in the financial services business for trading purposes, net	34,057	10,401	7,916		55,789
(Gain) loss on revaluation or impairment of securities	72,633	58,608	100,729		

investments held in the financial services business, net					
Deferred income taxes	5,689	3,688	1,397		
Equity in net (income) loss of affiliated companies, net of dividends		6,661			
(Increase) decrease in notes and accounts receivable, trade				5,828	37,529
(Increase) decrease in inventories		29,027		57,804	
(Increase) decrease in film costs				318,391	331,179
Increase (decrease) in notes and accounts payable, trade	173,654	266,870	252,403	49,525	1,386
Increase (decrease) in accrued income and other taxes	206,621		118,577	23,607	
Increase (decrease) in future insurance policy benefits and other		3,110	11,033		
(Increase) decrease in deferred insurance acquisition costs				83,774	93,234
(Increase) decrease in marketable securities held in the financial services business for trading purposes	73,967	77,656	79,861	107,433	81,456
(Increase) decrease in other current assets	25,254	33,803	51,565		21,402
Increase (decrease) in other current liabilities		48,115		25,751	
Other	55,830				65,650
Net cash provided by (used in) operating activities	38,229		112,645		

Chart 4.24 Horizontal Analysis of Cash Outflows from Operating Activities

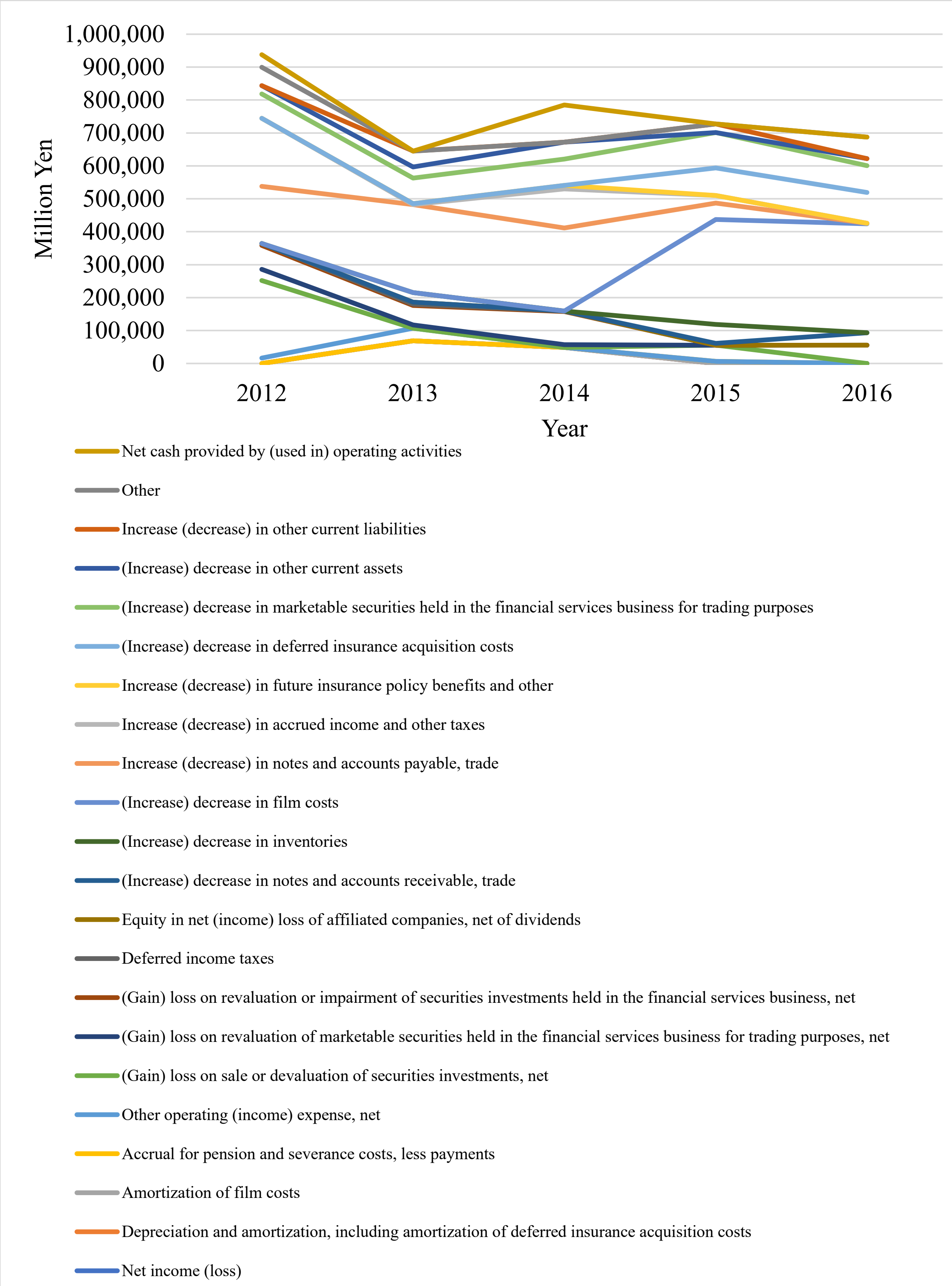
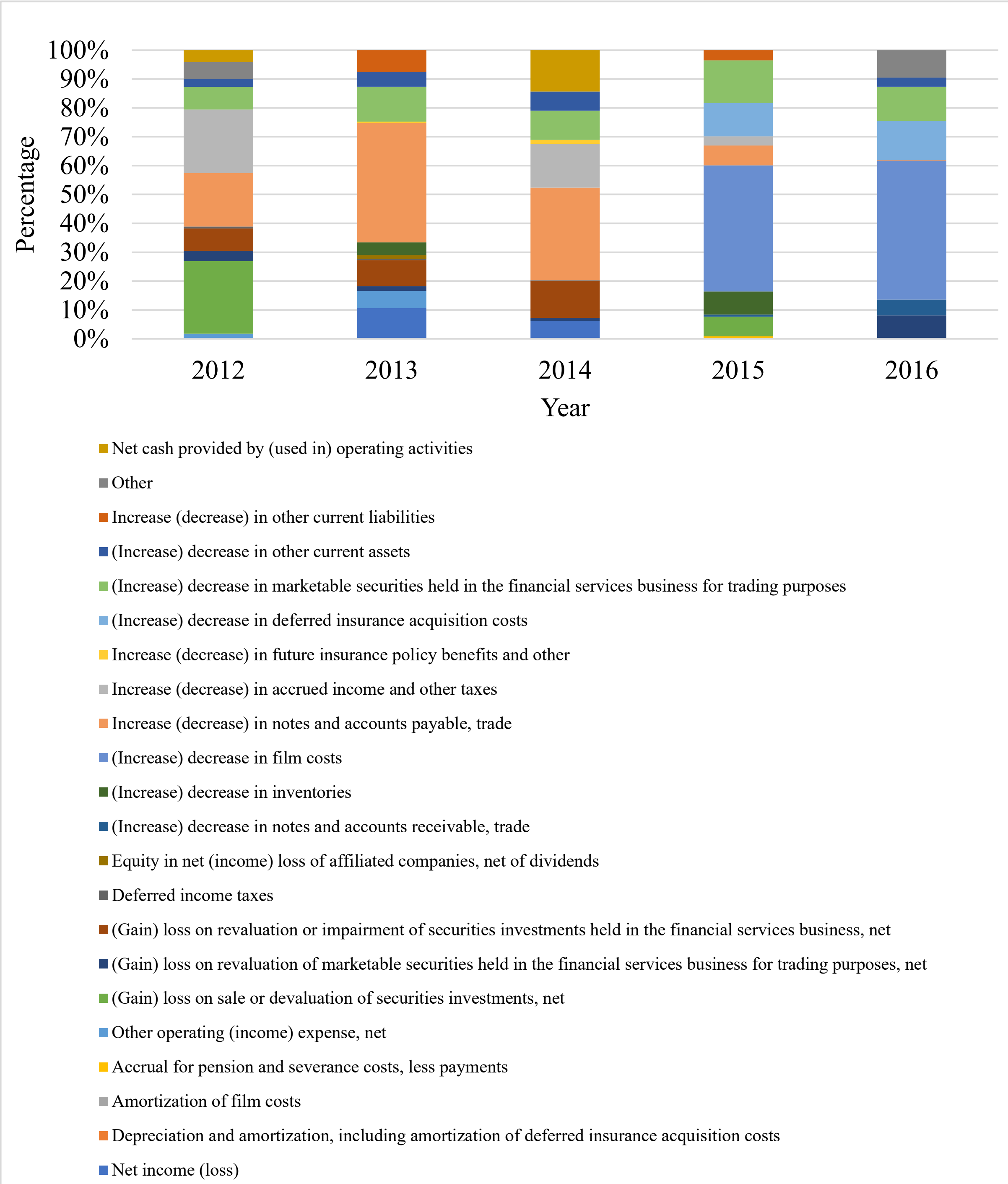


Chart 4.25 Vertical Analysis of Cash Outflows from Operating Activities



It seemed that there is a bit chaotic in the chart 4.26, however, there were still some regulars to find in this chart. In general, every single item had a trend that firstly, the figure experienced a dropping reaching the bottom then soar drastically, finally another decreasing took part. In detail, the inventories, Equity in net loss of affiliated companies, net of dividends, loss on sale or devaluation of securities investments, Accrual for pension and severance costs, less payments showed a downward trend all together, which indicated that the production scale and profitability of Sony decreased in these years. In contract to this, there is a rocket increase in the cash outflow in the film costs in 2015 possibly due to the hacker attack to the film The Interview which described an action of assassination of Kim Jong-un. Besides, the largest part in the structure chart had alternated from the accrual for pension and severance costs to film costs.

From the respect of cash inflow below, it looked like that Sony was not vibrant in the field of investments and advances. There was a falling tendency in each item.

Table 4.36 Cash Inflow from Investing Activities (Million Yen)

	2012	2013	2014	2015	2016
Payments for purchases of fixed assets	476,165	664,116	754,640		
Proceeds from sales of fixed assets				26,472	13,098
Payments for investments and advances by financial services business	245,758	99,694	36,777		
Payments for investments and advances (other than financial services business)					
Proceeds from sales or return of investments and collections of advances by financial services business				534,072	289,901
Proceeds from sales or return of investments and collections of advances (other than financial services business)	400,654	426,621	482,537	81,535	16,078
Proceeds from sales of businesses	78,010	75,417	49,479	17,790	3,262
Other	52,756				7,695
Net cash provided by (used in) investing activities		18,709			

Chart 4.26 Horizontal Analysis of Cash Inflow from Investing Activities

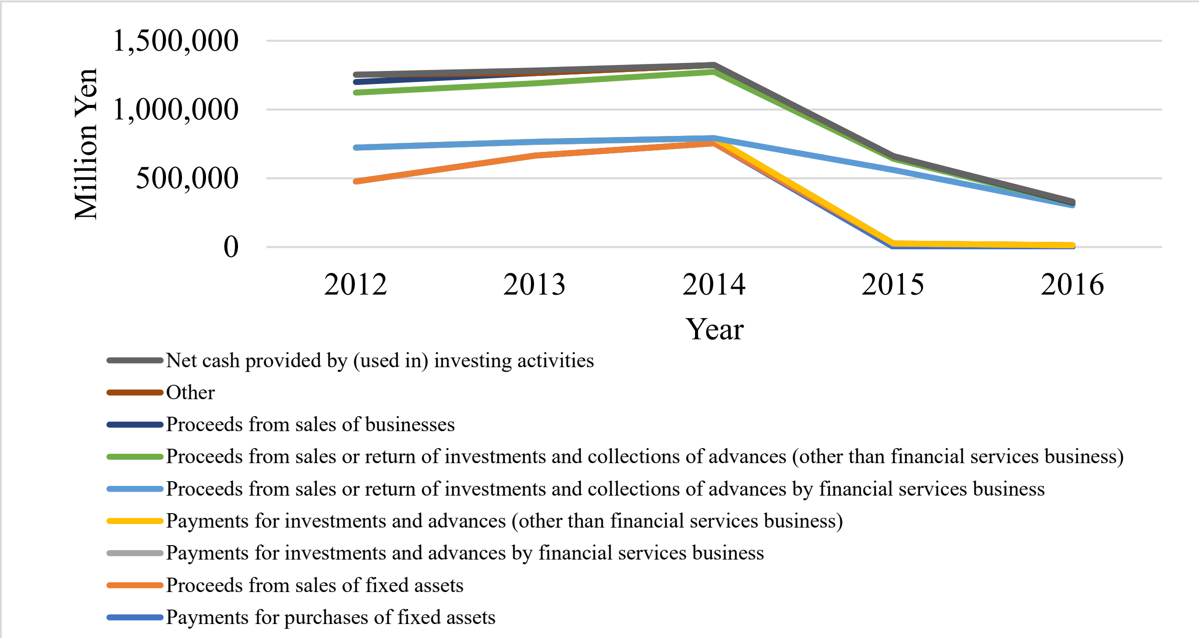
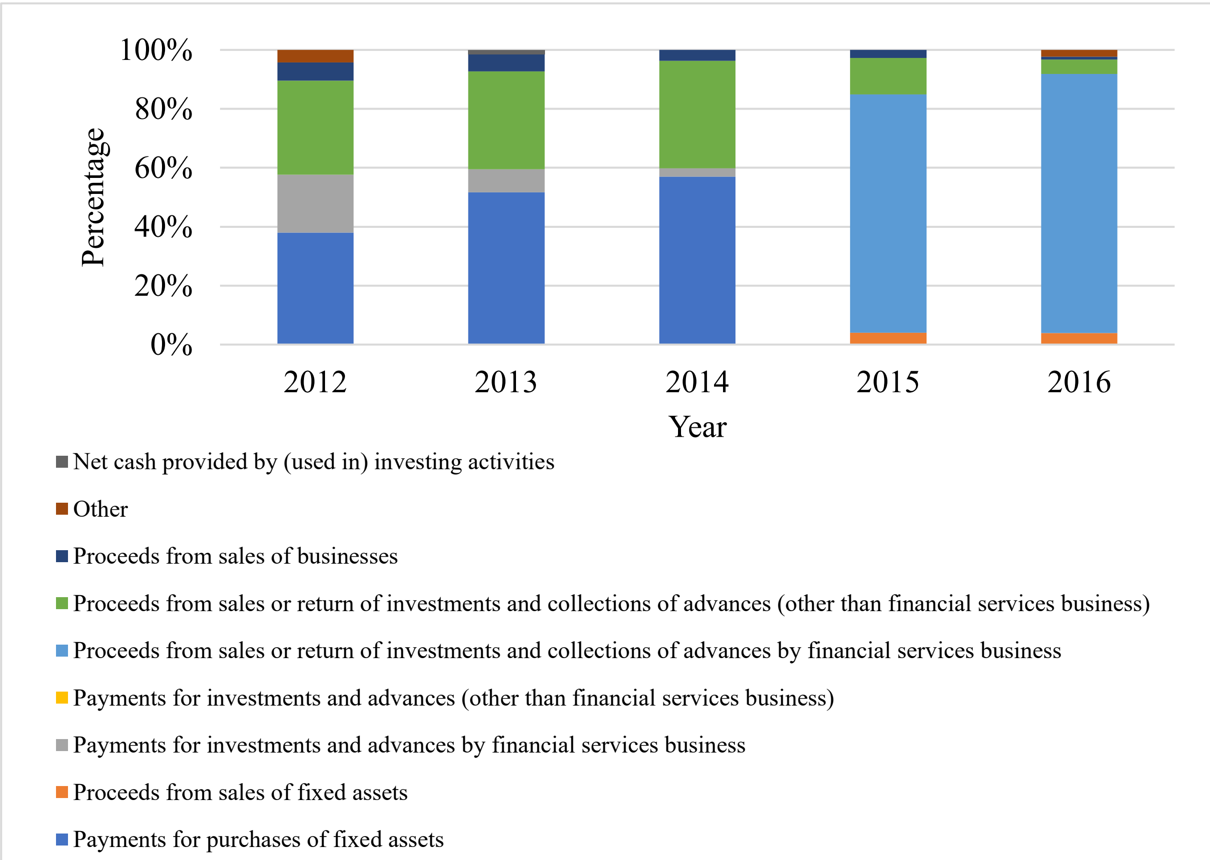


Chart 4.27 Vertical Analysis of Cash Inflow from Investing Activities



Correspondingly, when compared with cash outflow, there was an opposite situation in these years. The payments from purchases of fixed assets and proceeds from sales or return of investment and collections of advances (other than financial services business) took first place with almost 40% and second place with around 25%. In the remain years, the latter shrank immediately, but it, anyhow, took the second place. Yet the former I mentioned disappeared and replaced by the investments and collections of advances by financial services business.

Items that may be included in the investing activities line item include purchase of fixed assets (negative cash flow), sale of fixed assets (positive cash flow) and purchase of investment instruments, such as stocks and bonds (negative cash flow). In these table and charts below, the figure of every item rose suddenly in 2015, while some items reached the peak, others did not.

Table 4.37 Cash Outflow from Investing Activities (Million Yen)

	2012	2013	2014	2015	2016
Payments for purchases of fixed assets				375,411	333,509
Proceeds from sales of fixed assets	326,490	283,457	215,916		
Payments for investments and advances by financial services business				1,221,093	1,233,290
Payments for investments and advances (other than financial services business)	1,046,764	1,032,594	960,045	20,830	17,208
Proceeds from sales or return of investments and collections of advances by financial services business	92,364	14,892	20,029		
Proceeds from sales or return of investments and collections of advances (other than financial services business)					
Proceeds from sales of businesses					
Other				72,938	
Net cash provided by (used in) investing activities	16,840		12,439	1,030,403	1,253,973

Chart 4.28 Horizontal Analysis of Cash Outflow from Investing Activities

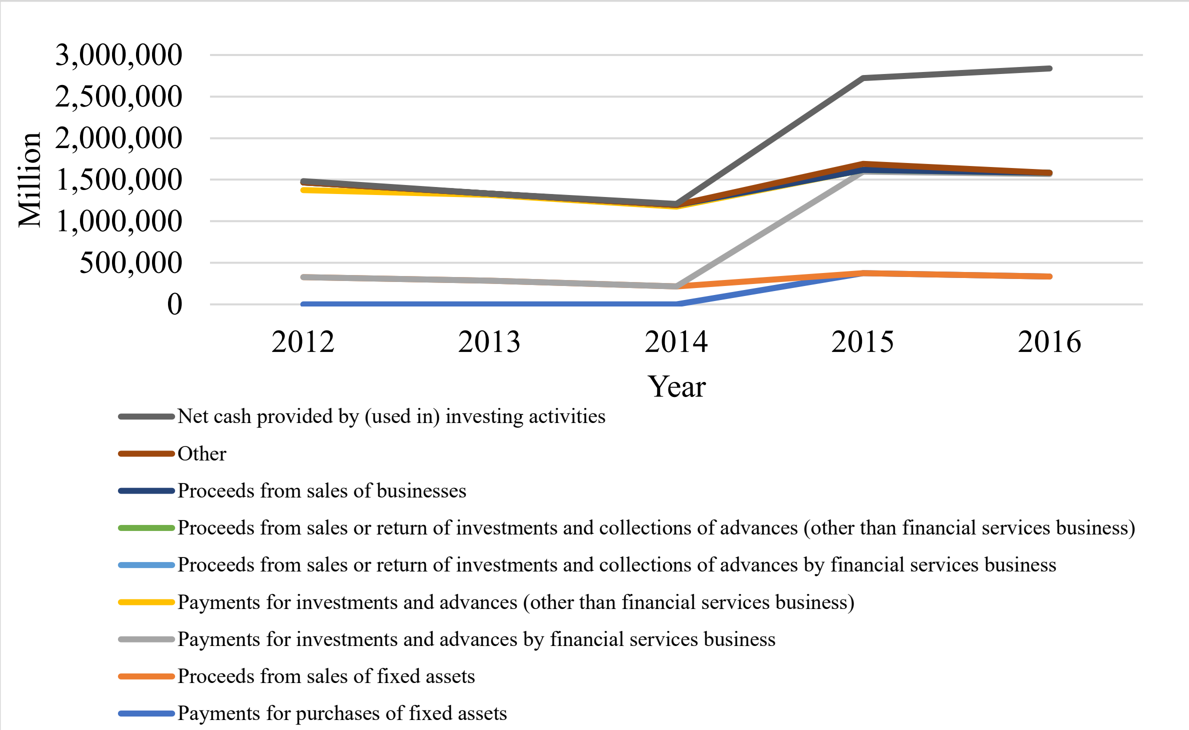
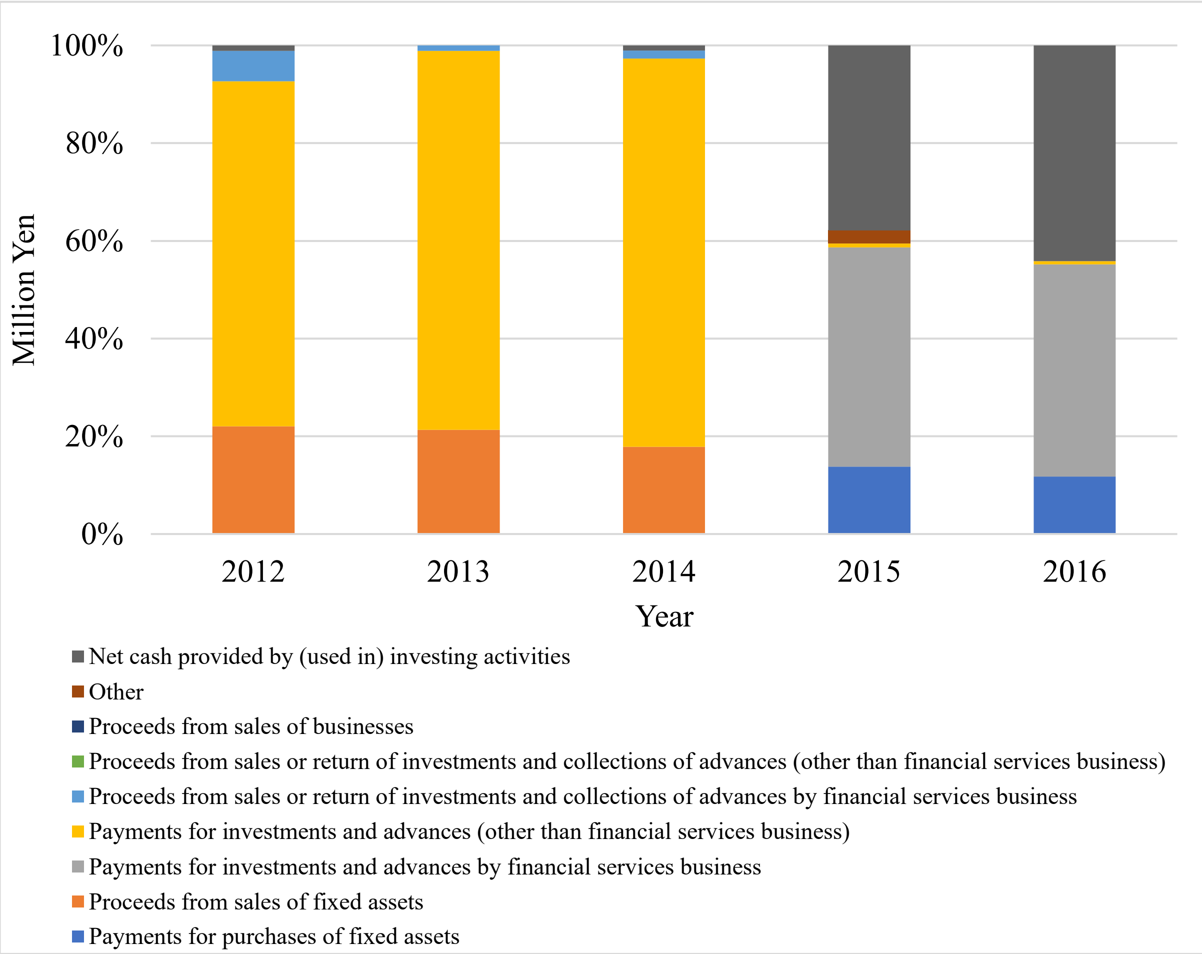


Chart 4.29 Vertical Analysis of Cash Outflow from Investing Activities



For example, the sales of businesses drop again introducing Sony had already stopped to sale its segments to other companies. In this period, Sony really enjoyed investing which showed by the activities of payments for investments and advances (other than financial services business) taking place in the first three years before the payments for investments and advances by financial services business and the net cash provided by (used in) investing activities took the first and second place, respectively. These results illustrated Sony want to make a big profit from the investment and financial business, to some extent, this phenomenon can be regarded as the amount of the sales of Sony's electronic consumer goods shrank, though.

When it comes to cash flows from financing activities, this part of cash flow category in a company's cash flow statement that accounts for external activities that allow a firm to raise capital.

Table 4.38 Cash Outflow from Financial Activities (Million Yen)

	2012	2013	2014	2015	2016
Proceeds from issuance of long-term debt				19,076	254,695
Payments of long-term debt	159,781	178,935	18,507		
Increase (decrease) in short-term borrowings, net				98,153	317,827
Increase (decrease) in deposits from customers in the financial services business, net		25,183		165,169	277,152
Proceeds from issuance of convertible bonds	237,908	238,828	57,464	120,000	
Proceeds from issuance of new shares	150,000			301,708	
Dividends paid					
Payment for purchase of Sony/ATV shares from noncontrolling interests					
Other					
Net cash provided by (used in) financing activities	88,528	207,877		380,122	452,302

Chart 4.30 Horizontal Analysis of Cash Inflow from Financial Activities

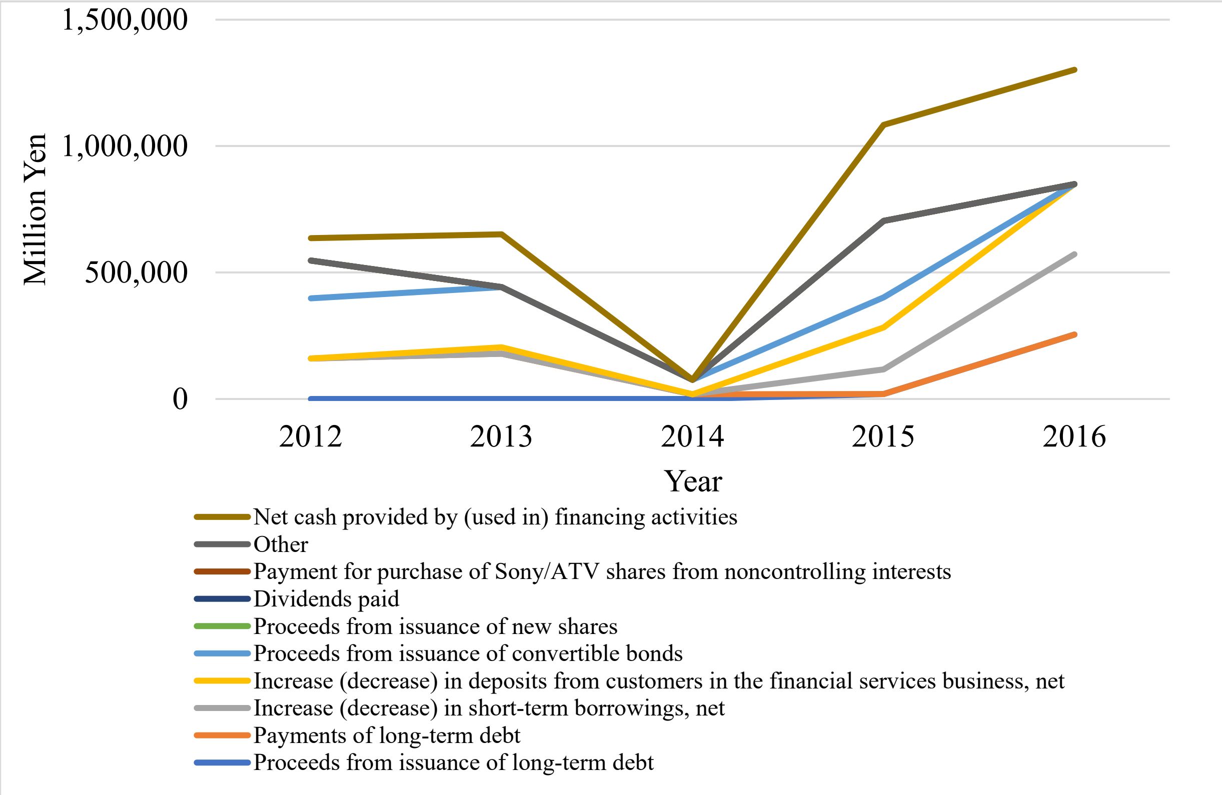
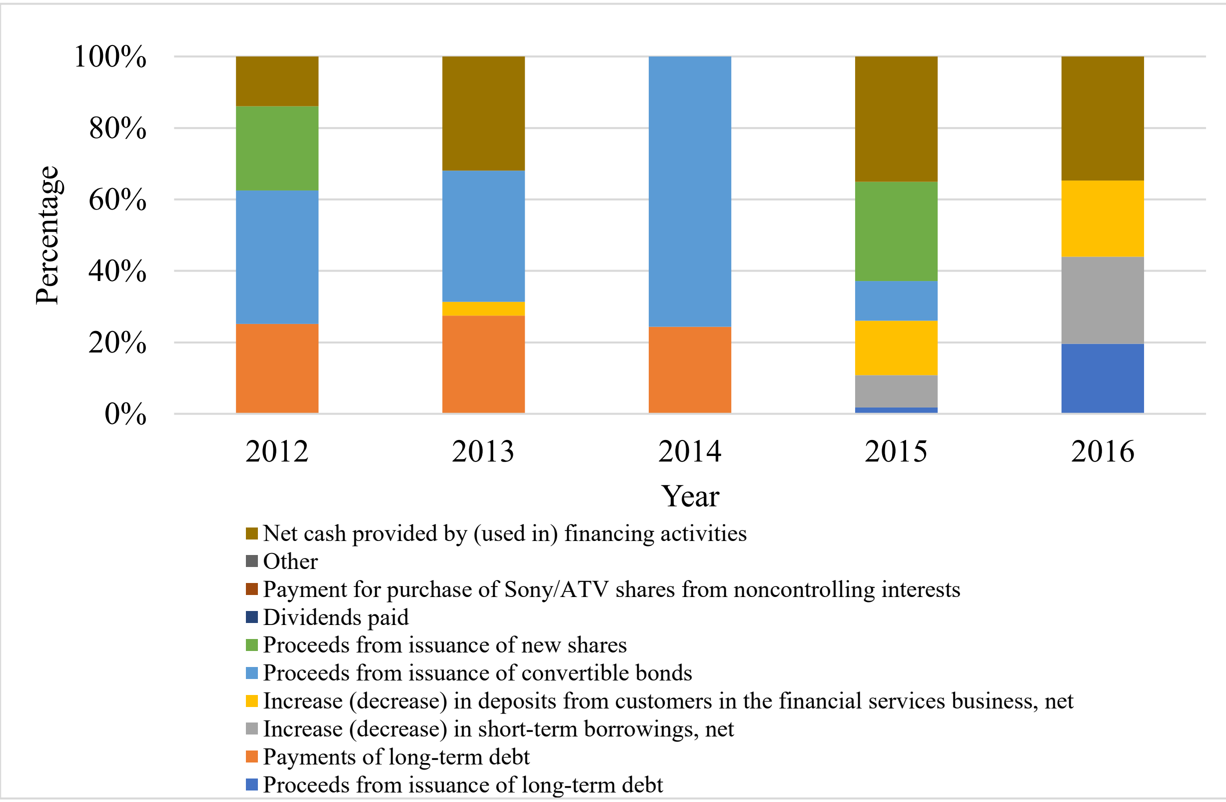


Chart 4.31 Vertical Analysis of Cash Inflow from Financial Activities



This statement is one of the documents comprising a company's financial statements. The line item contains the sum total of the changes that a company experienced during a designated reporting period that were caused by transactions with owners or lenders to either provide long-term funds to the company or to return those funds to the owners or lenders. In 2014, it seemed that Sony did not decide that they were going to spent cash at all, thus, there were just two items on the cash outflow table, as well a significantly dropping of several items occurred in this year. Anyway, if ignoring the data in the 2014, the next year, however, experienced a slight increasing of almost each item. Although Sony have recognized this circumstance, in which case, at the early of 2014, Sony decided to sell its computer department named VAIO due to pool sales, its Tokyo headquarters skyscraper for 16.1bn Japanese Yen and its e-book business and sell it to the Canadian e-reader manufacturer Kobo, it still had a poor sell results in 2014. However, the sale of burden saved the date on the financial statement of Sony, in 2015 Sony made profit again. Because of these sells, the cash flow, no matter what the cash inflow or outflow, had enormous differences in 2014.

4.2 Financial Ratio Analysis

By itself, a ratio is not very useful, but when compared to other companies in the same economic sector, to the broader market, or changes over time – then ratios become a powerful tool to evaluate how attractive a potential investment might be.

4.2.1 Profitability Ratio

The data in the table indicated the profitability ability of Sony and the shape of trend line in *Chart 4.34* is as similar as the ones above.

Table 4.39 Profitability Ratio (%)

	2012	2013	2014	2015	2016
Net Profit margin	1.79	-1.03	-0.70	3.02	1.98
Gross Profit Margin	21.19	23.08	25.02	25.65	26.23
Operating Profit Margin	3.98	0.40	0.97	4.23	4.48
Pre-tax Profit Margin	4.25	0.39	0.56	4.38	3.91
Return on Sales	1.79	-1.03	-0.70	3.02	1.98
Return on Assets		-0.12	-0.08	0.08	0.05
Return on Equity		-0.80	-0.53	2.14	1.28

Chart 4.32 Profitability Ratio (1)

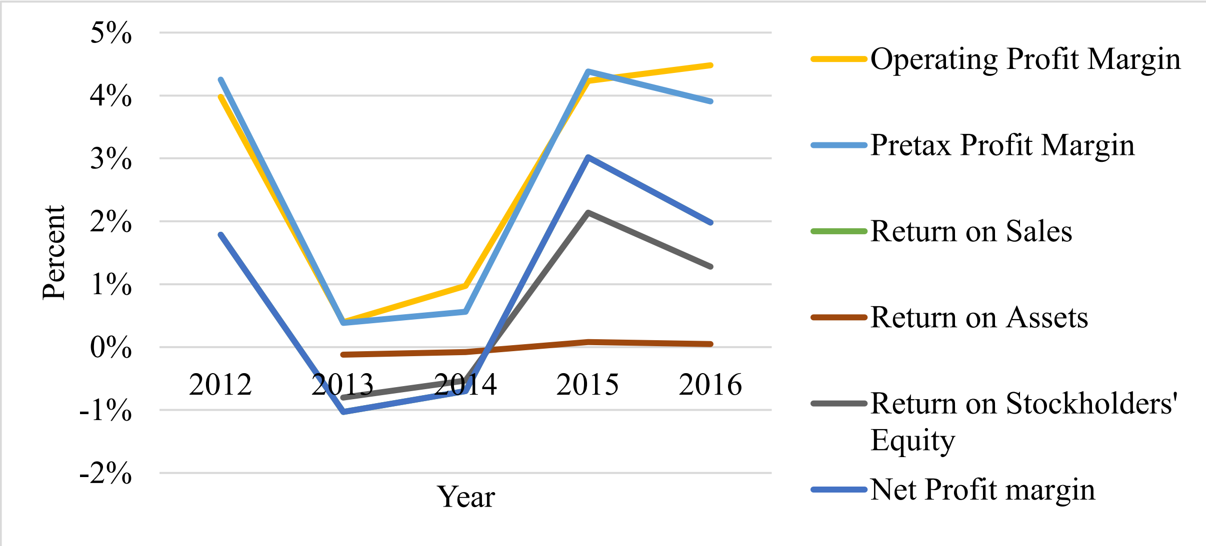
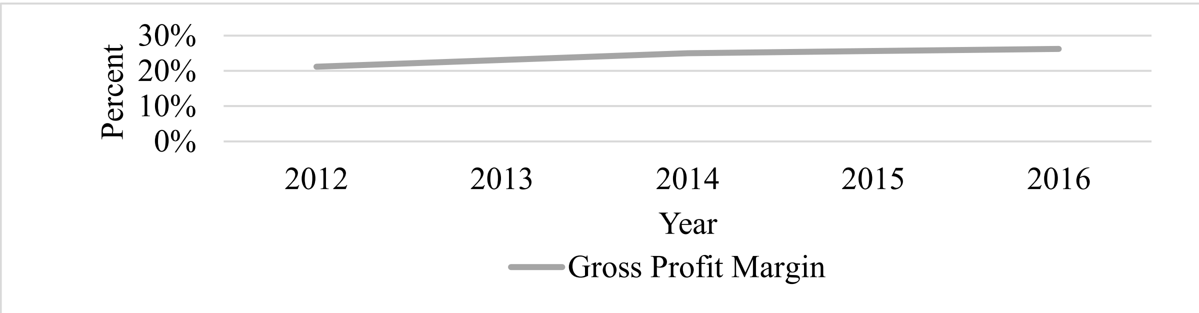


Chart 4.33 Profitability Ratio (2)



As if the year of 2014 is a depressed year to Sony. When it comes to operating profit margin in 2014, Sony had tried to rose its OPM ratio again to prove it was still the giant in electronic consumer goods.

Hirai Kazuo, the one who was appointed to be the chief executive officer in 2012, revived Sony. In this year, Sony made the first profit since 2008. Three years later, Sony made another profit after loss for lasting two years in 2015, which showed in the profitability ratio table. For now, we could identify that Sony company was in a situation that it had to do something to save itself while it still can.

The gross profit margin was in an increasing trend while the operating profit margin fluctuated in these, which implied that Sony has to control the cost especial in the manufacture process and in fact, so it did such as outsourcing the television production line.

4.2.2 Leverage Ratio

When it comes to leverage ratio, the first chart is the steadiest one indicating there was no significant changes in the structure of composition of the assets.

Table 4.40 Leverage Ratio

	2012	2013	2014	2015	2016
Debt Ratio (%)	81.86	81.53	81.46	80.75	82.13
Equity Ratio (%)	14.67	15.13	14.87	15.40	14.11
Debt-Equity Ratio (%)	581.54	561.12	572.43	549.41	608.92
Times Interest Earned	10.0814	2.097229	2.683432	13.0424	18.30054

Chart 4.34 Leverage Ratio (1)

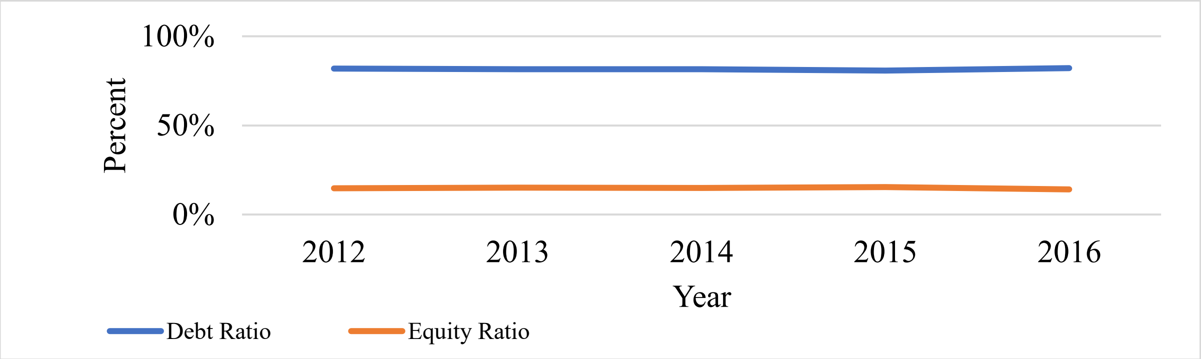


Chart 4.35 Leverage Ratio (2)

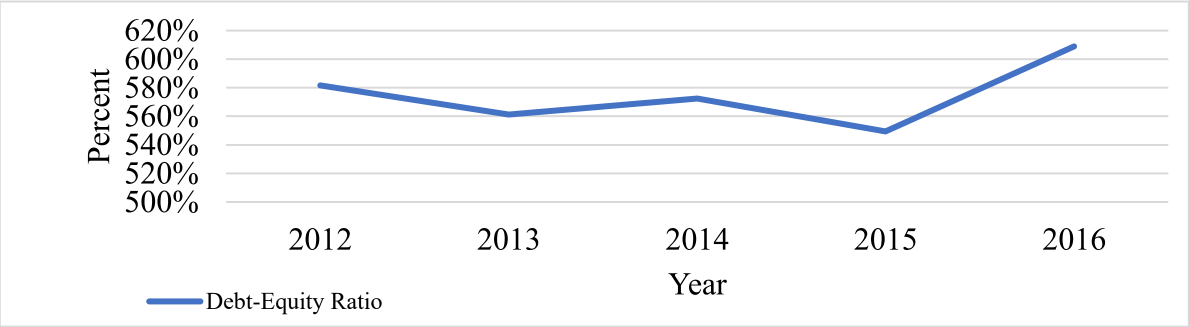
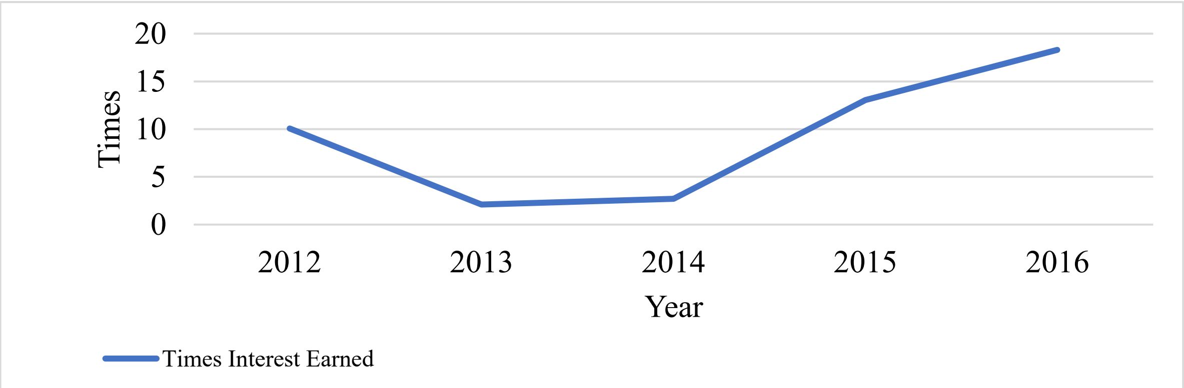


Chart 4.36 Leverage Ratio (3)



Sony had a stable capital resource from issuing the bonds, loaning from the bank and issuing the new shares. Yet, from a micro view in the Chart 4.37, the debt-equity ratio fluctuated in these years. The debt that Sony borrowed is about 5.8 times bigger than the stock Sony issued. Facing a 5.8-times-as-large-as-equity debt, Sony felt pressures in the period of profitable difficulty from 2013 to 2014. The times interest earned (also called interest coverage ratio) bottomed at 2 in 2013 then slightly rose finally increased in the following years.

4.2.3 Liquidity Ratio

The liquidity ratio below reflects the ability that a company repay its loan. As a reputable company, Sony has to concern about these ratios below.

Table 4.41 Liquidity Ratio

	2012	2013	2014	2015	2016
Current Ratio (%)	81.75	87.41	89.66	90.40	84.28
Acid Test Ratio (%)	50.21	55.32	58.39	59.88	55.24
Cash Ratio (%)	30.87	33.99	35.51	37.61	33.82
Cash Conversion Cycle (Days)	2.18959	2.153724	2.194066	2.314757	2.368828
Net Working Capital (Million Yen)	-3205087	-2430339	-1996458	-1908894	-3155883

Chart 4.37 Liquidity Ratio

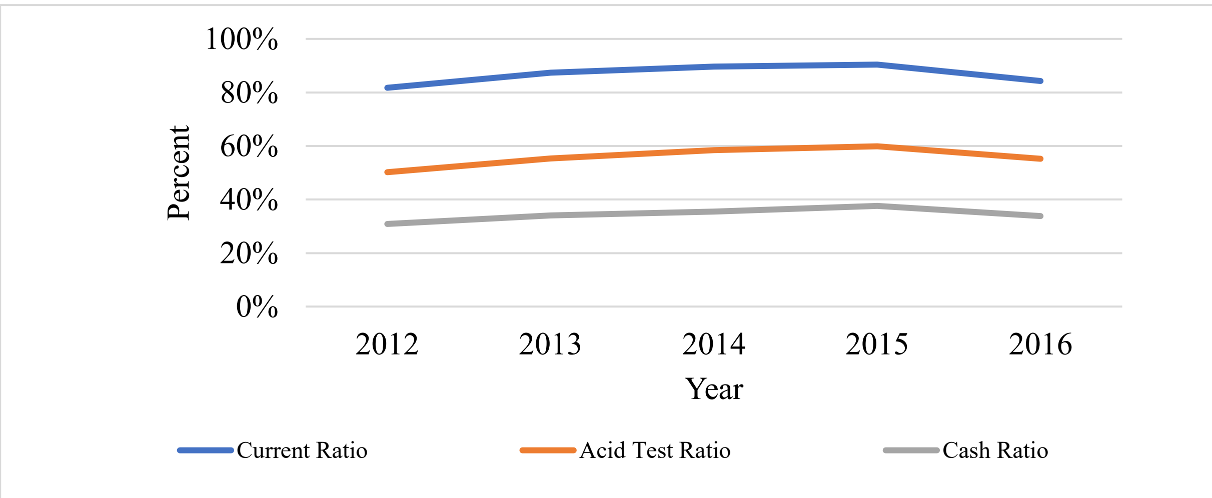


Chart 4.38 Cash Conversion Cycle

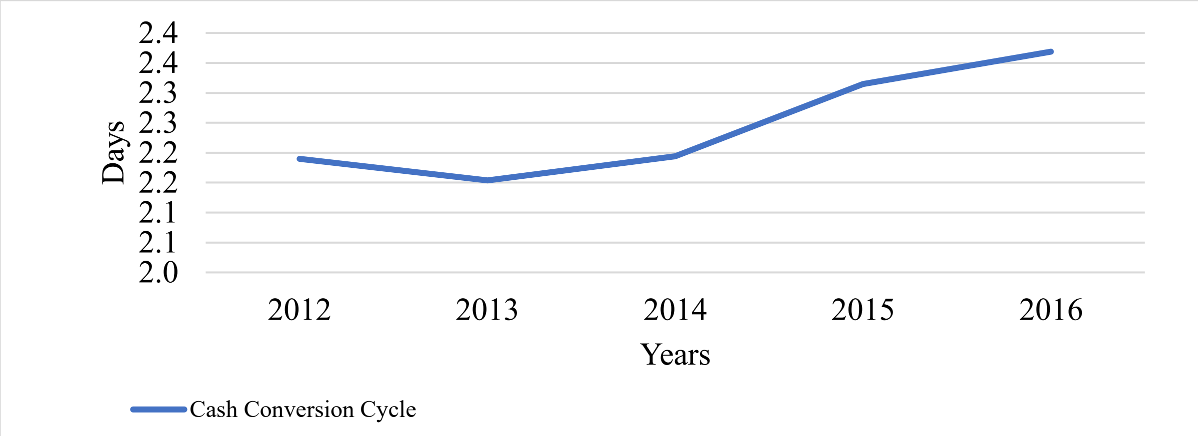
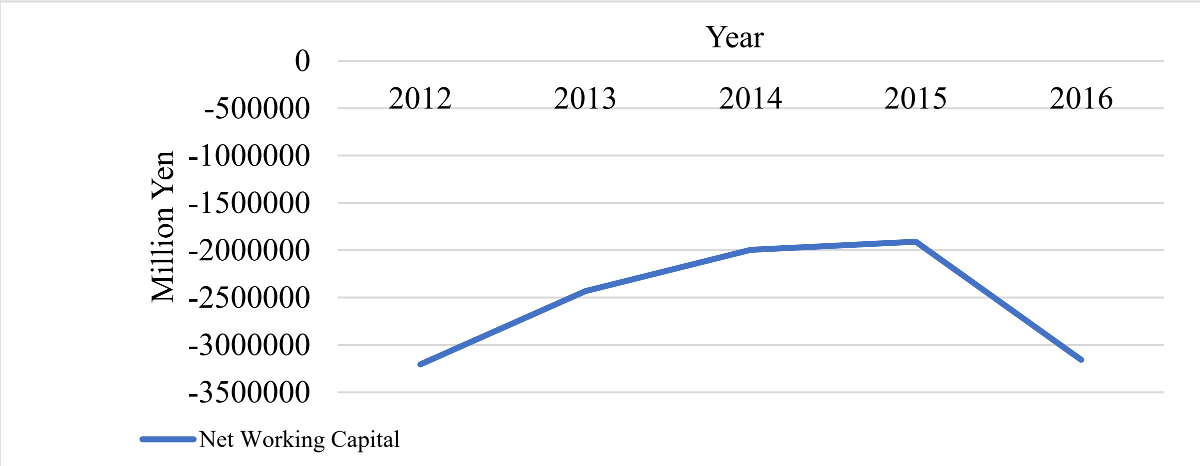


Chart 4.39 Net Working Capital



Fortunately, Sony turn out to be extremely great with these ratio, for example, it is highly recommended that the current ratio exceeds 25%, cash ratio exceeds 20% and Sony met the requirements so when Sony want to loan, there will not be a big problem. Cash conversion cycle, however, is in a rising tendency, which demonstrated Sony had some small problem with converting its security and some current assets into cash. What is alarming being that net working capital is substantially negative. If the figure is substantially negative, then the business may not have sufficient funds available to pay for its current liabilities and may be in danger of bankruptcy.

4.3 Pyramid Decomposition Analysis

The following table showed the processes of the pyramid decomposing of Return on Assets, which is an expression breaking the ROA into two components.

Table 4.42 The Variable affecting ROA (Million Yen)

	2013	2014	2015	2016
Net Income	-68841	-49004	209715	127561
Revenue	6682274	7035537	6949357	6443328
Average Total Assets	57588214.5	61776537	64774730	67622201.5
Profit Margin	-1.03%	-0.70%	3.02%	1.98%
Assets Turnover Ratio	11.60%	11.39%	10.73%	9.53%
Return on Assets	-0.12%	-0.08%	0.32%	0.19%

Table 4.43 Absolute different between Variable of ROA

	Absolute difference (2013-2014)	Absolute difference (2014-2015)	Absolute difference (2015-2016)
Net Income	19837	258719	-82154
Revenue	353263	-86180	-506029
Average Total Assets	4188323	2998193	2847471.5
Profit Margin	0.334%	3.714%	-1.038%
Assets Turnover Ratio	-0.215%	-0.660%	-1.200%
Return on Assets	0.040%	0.403%	-0.135%

Table 4.44 Order of Variable Affecting ROA

Gradual changes Method	2013-2014	order	2014-2015	order	2015-2016	order
The effect caused by Profit Margin	0.0387%	1	0.4230%	1	-0.1114%	1
The effect caused by Assets Turnover Ratio	0.0015%	2	-0.0199%	2	-0.0238%	2

There is a more complex table breaking the ROE into three components, which implied the relationship amongst the profit margin, the assets turnover and the financial leverage.

Table 4.45 The Variable affecting ROE (Million Yen)

	2013	2014	2015	2016
EAT	-68841	-49004	209715	127561

Revenue	6682274	7035537	6949357	6443328
Average Total Assets	57588214.5	61776537	64774730	67622201.5
Average Equity	8587225.5	9264248	9808747	9969861
Net profit Margin	-1.03%	-0.70%	3.02%	1.98%
Assets Turnover Ratio	11.60%	11.39%	10.73%	9.53%
Financial leverage	670.63%	666.83%	660.38%	678.27%
Return on Equity	-0.802%	-0.529%	2.138%	1.279%

Table 4.46 Absolute different between Variable of ROE

	Absolute difference (2013-2014)	Absolute difference (2014-2015)	Absolute difference (2015-2016)
EAT	19837	258719	-82154
Revenue	353263	-86180	-506029
Average Total Assets	4188323	2998193	2847471.5
Average Equity	677022.5	544498.5	161114.5
Net profit Margin	0.334%	3.714%	-1.038%
Assets Turnover Ratio	-0.215%	-0.660%	-1.200%
Financial leverage	-3.799%	-6.450%	17.889%
Return on Equity	0.273%	2.667%	-0.859%

Table 4.47 Order of Variable Affecting ROE

Gradual changes Method	2013-2014	order	2014-2015	order	2015-2016	order
The effect caused by Profit Margin	0.2597%	1	2.8207%	1	-0.7354%	1
The effect caused by Assets Turnover Ratio	0.0100%	2	-0.1329%	2	-0.1569%	2

The effect caused by Financial leverage	0.0030%	3	-0.0209%	3	0.0337%	3

According the gradual changes method, the ROA has been decomposed into two elements, the profit margin and the asset turnover ratio, which had different impact on the ROA. In the entire period from 2013 to 2016, the profit margin was the main cause of the difference of the ROA, on the other words, the ROA was hardly affected by the assets turnover, which revealed that Sony company did not speed up to convert the assets to net sales.

Still, the change of return on equity was crucially impacted by the profit margin throughout these years. In detail, when focusing on the data in the period from 2014-2015, the percentage of the effect caused by profit margin outnumbered the ones of other two years. After all, Sony had a critical adjustment inside it in this year.

5. Results Summary

Sony Corporation is not in a very positive financial position. Over the five years we analysed, there are three loss years and two profit years. Even though Sony attempted to though selling its assets, its headquarters and layoffs to avoid of loss, Sony just obtain cash from these commercial activities not gain profit. It is obvious to identify that Sony convert these assets into cash, however, the key area of the company is the researching and developing new products as well as marketing, in other word, what Sony needs is profitability. The financial reports show that Sony has so many methods to gain cash, beside its financial business bringing inexhaustible cash flow into the company that they have no worry about the liquidity. Sony's lack strength is the ability to create more opportunities to spend the cash properly.

In the common-size analysis, every loss years are accompanied with the failure of the product. Specifically, year 2013,2014 and 2016 experienced a decrease in each item, whether Sony was in a financial distress or not, let alone Sony was not in an illiquidity situation. Layoff and selling assets is on an objective to a strategy to resolve the overly complicated company structure and is a measure to reduce the burden on the company and decrease managerial difficulty.

Moreover, year 2015 is an inflection point in company. In the relative steady years without any management personnel changes, development is the key to get rid of a non-profitability status. Even if FY2016 is still a loss year, the top manager noticed that the financial reports in 2016 had a better performance than previous years. It is not so much about product success as it is about eliminating the difficulty of the complex internal structure in the company.

In the financial ratio, the profitability ratio, the leverage ratio and liquidity ratio together revealed that Sony is not in a negative financial distress. In the profitability analysis, apart from 2012 and 2015, the others had a decreasing trend, especially the ROA, from 2013 to 2016, Sony had an array of assets while it failed to convert the merit in the assets into the success in the product.

The result of poor profitability is not unique in the financial ratio analysis, but as well in the pyramid decomposition analysis. In this analysis, regardless of ROA or ROE, the effect on them caused by profit margin ranked the first place, in which case, whatever the performance of financial leverage is, the assets cannot properly play their own role, so the assets turnover ratio ranked the second place, the financial leverage took the third place. In such circumstance that the effect caused by profit margin is 86.6 times as big as the effect caused by financial leverage and even the effect caused by assets turnover ratio is 3.3 times more than the effect caused by financial leverage, it is urgent for Sony to take some measure and adjustment to promote its profitability.

At this point the company does not have strong future prospects in the areas of profitability and stability if it continues on its current path. Investors should be concerned with current rates of return and management and creditors merely need be concerned with the fluctuation of liquidity of the company as indicated in the ratio analysis.

6. Conclusion

The approaches applied by this thesis analysed the financial situation shows that the key areas of reform are the profitability of the company and the quantity and quality of working capital, and financial stability. Management must address these areas simultaneously if the company is to overcome its present poor record.

The investors were very pleasured to see the new financial reports released on 28th April 2018, which is a profitable year with 8544 billion Yen as of 31 March, out of which the operating income achieved 734.9 billion Yen. The most significant contribution to performance was the Play Station belonging to the Sony Interactive Entertainment, which is a department always focused on creating adequate entertainment services to the consumer, just as was mentioned in the thesis, the product is the most powerful weapon to win in the market. Yet the mobile department did not make a great achievement, in contrast, they are the worst profitability because the smartphones they produced is popular, which, meanwhile, was the only sector that had no profit. It is worth warming that if this department continuously loss in the following years, Sony probably split it to avoid of sustained losses.

It must be remembered that this analysis is limited: a greater depth of understanding and evaluation can only occur with utilisation of other resources such as comparisons with budget forecasts and the statement of changes in financial position. Only after this process can a full appreciation of the company's current situation and possible future occur.

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List of Abbreviations

EPS	Earnings per share
FASB	Financial Accounting Standards Board
ROA	Return on assets
ROE	Return on equity
OPM	Operating profit margin

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Ostrava dated 3rd May 2018

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List of Annexes

Annex 1: Sony Consolidated Historical Data of Balance Sheet 2012-2016

Annex 2: Sony Consolidated Historical Data of Statement of Income 2012-2016

Annex 3: Sony Consolidated Historical Data of Cash Flows 2012-2016

Annex 1: Sony Consolidated Historical Data of Balance Sheet 2012-2016 (Million Yen)

			2012	2013	2014	2015	2016
Assets	Current assets	Cash and cash equivalents	2,771,311	3,422,573	3,180,825	3,712,456	2,888,073
		Marketable securities	2,647,959	3,138,764	3,675,612	3,765,060	3,902,285
		Notes and accounts receivable, trade	3,395,728	4,115,741	4,418,376	4,428,153	4,299,581
		Allowance for doubtful accounts and sales returns	(263,297)	(296,736)	(331,508)	(349,626)	(226,501)
		Inventories	3,110,298	3,390,861	3,185,775	3,153,400	2,902,315
		Other receivables	728,505	917,668	1,057,538	1,059,083	941,299
		Deferred income taxes	153,533	198,450	202,326	193,235	124,659
		Prepaid expenses and other current assets	1,808,209	1,984,600	1,922,714	2,012,520	2,089,661
	Current assets Total		14,352,246	16,871,921	17,311,658	17,974,281	16,921,372
	Film costs		1,037,850	1,222,457	1,203,147	1,396,747	1,337,338
	Investments and advances	Affiliated companies	392,802	736,591	714,864	667,933	628,169
		Securities investments and other	27,086,008	29,868,915	32,296,532	34,957,197	38,438,211
	Investments and advances Total		27,478,810	30,605,506	33,011,396	35,625,130	39,066,380
	Property, plant and equipment	Land	547,560	519,776	502,015	491,437	473,592
		Buildings	3,207,719	2,969,002	2,744,773	2,677,197	2,589,892
		Machinery and equipment	7,745,032	7,385,368	6,984,432	7,223,709	7,267,546
		Construction in progress	164,211	175,632	152,035	268,871	191,873
		Less-Accumulated depreciation	(8,058,745)	(7,787,830)	(7,389,363)	(7,422,254)	(7,451,113)
	Property, plant and equipment Total		3,605,777	3,261,948	2,993,892	3,238,960	3,071,790
	Other assets	Intangibles, net	2,614,215	2,780,736	2,633,109	2,534,352	2,313,916
		Goodwill	2,403,366	2,738,682	2,350,051	2,438,587	2,158,429
		Deferred insurance acquisition costs	1,821,789	1,940,087	2,056,239	2,109,149	2,135,856
		Deferred income taxes	406,324	433,882	380,081	345,822	395,108
		Other	749,781	851,052	907,230	1,039,629	1,141,557
	Other assets Total		7,995,475	8,744,439	8,326,710	8,467,539	8,144,866
Assets Total			54,470,158	60,706,271	62,846,803	66,702,657	68,541,746
Liabilities and Equity	Current liabilities	Short-term borrowings	804,404	413,779	425,787	763,860	1,270,441
		Current portion of long-term debt	725,255	1,267,842	587,286	627,440	459,935
		Notes and accounts payable, trade	2,590,510	3,183,047	3,060,787	2,894,034	2,512,628
		Accounts payable, other and accrued expenses	4,034,648	4,513,535	5,075,407	5,514,344	5,185,101
		Accrued income and other taxes	267,494	405,308	487,615	446,699	446,386
		Deposits from customers in the banking business	7,311,690	7,409,644	7,390,982	7,431,303	8,033,923
		Other	1,823,332	2,109,105	2,280,252	2,205,495	2,168,841
	Current liabilities Total		17,557,333	19,302,260	19,308,116	19,883,175	20,077,255
	Long term liabilities	Long-term debt	3,537,974	3,718,917	3,028,667	2,728,322	2,573,473
		Accrued pension and severance costs	1,224,039	1,231,656	1,146,259	1,356,117	1,744,529
		Deferred income taxes	1,250,978	1,532,204	1,737,304	1,740,532	1,753,021
		Future insurance policy benefits and other	13,636,928	14,867,161	16,054,248	17,429,637	18,885,846
		Policyholders' account in the life insurance business	6,326,843	7,628,049	8,683,106	9,444,356	10,037,196
		Other	1,053,802	1,214,372	1,236,379	1,279,054	1,222,131
	Long term liabilities Total		27,030,564	30,192,359	31,885,963	33,978,018	36,216,196

	Redeemable noncontrolling interest		28,257	13,091	18,951	27,849	33,672
	Sony Corporation's stockholders' equity:	Common stock	2,523,692	2,565,028	2,751,515	3,283,760	3,439,455
		Additional paid-in capital	4,525,384	4,486,416	4,665,481	5,161,283	5,142,207
		Retained earnings	4,188,411	4,194,953	3,532,175	3,786,957	3,860,926
		Accumulated other comprehensive income	(3,227,201)	(2,046,840)	(1,586,087)	(1,943,769)	(2,756,954)
		Treasury stock, at cost	(18,108)	(17,284)	(16,861)	(16,961)	(17,182)
	Sony Corporation's stockholders' equity: Total		7,992,178	9,182,273	9,346,223	10,271,270	9,668,452
	Noncontrolling interests		1,861,826	2,016,288	2,287,550	2,542,345	2,546,171
Liabilities and Equity Total			54,470,158	60,706,271	62,846,803	66,702,657	68,541,746

Annex 2: Sony Consolidated Historical Data of Statement of Income 2012-2016 (Million Yen)

		2012	2013	2014	2015	2016
Sales and operating revenue	Net sales	5,691,216	6,682,274	7,035,537	6,949,357	6,443,328
	Financial services revenue	999,276	988,944	1,077,604	1,066,319	1,080,284
	Other operating revenue	105,012	96,048	102,739	90,036	79,638
Sales and operating revenue Total		6,795,504	7,767,266	8,215,880	8,105,712	7,603,250
Costs and expenses	Cost of sales	4,485,425	5,140,053	5,275,144	5,166,894	4,753,010
	Selling, general and administrative	1,457,626	1,728,520	1,811,461	1,691,930	1,505,956
	Financial services expenses	854,221	816,158	882,990	907,758	910,144
	Other operating (income) expense, net	(235,219)	48,666	181,658	47,171	149,001
Costs and expenses Total		6,562,053	7,733,397	8,151,253	7,813,753	7,318,111
Equity in net income (loss) of affiliated companies		(6,948)	(7,374)	3,921	2,238	3,563
Operating income (loss)		226,503	26,495	68,548	294,197	288,702
Other income	Interest and dividends	21,987	16,652	12,887	12,455	11,459
	Gain on sale of securities investments, net	41,756	11,433	8,714	52,068	234
	Foreign exchange gain, net	5,422	6,191			1,615
	Other	4,913	14,367	3,475	2,326	2,734
Other income Total		74,078	48,643	25,076	66,849	16,042
Other expenses	Interest	26,657	23,460	23,600	25,286	14,544
	Loss on devaluation of securities investments	7,722	1,554		3,058	7,579
	Foreign exchange loss, net	15,782	15,415	20,533	20,565	23,796
	Other	8,336	8,968	9,762	7,633	7,206
Other expenses Total		58,497	49,397	53,895	56,542	53,125
Income (loss) before income taxes		242,084	25,741	39,729	304,504	251,619
Income taxes		140,397	94,582	88,733	94,789	124,058
Net income (loss)		101,687	(68,841)	(49,004)	209,715	127,561
Less: Net income (loss) attributable to noncontrolling interests		60,147	59,528	76,976	61,924	54,272
Net income (loss) attributable to Sony Corporation's stockholders		41,540	(128,369)	(125,980)	147,791	73,289

Annex 3: Sony Consolidated Historical Data of Cash Flows 2012-2016

		2012	2013	2014	2015	2016
Cash flows from operating activities	Net income (loss)	101,686.00	(68,841.00)	(49,004.00)	209,715.00	127,561.00
	Depreciation and amortization, including amortization of deferred insurance acquisition costs	376,735.00	376,695.00	354,624.00	397,091.00	327,048.00
	Amortization of film costs	208,051.00	285,673.00	272,941.00	299,587.00	297,505.00
	Accrual for pension and severance costs, less payments	1,232.00			(6,383.00)	9,297.00
	Other operating (income) expense, net	(16,669.00)	(38,131.00)	9,638.00	47,171.00	149,001.00
	(Gain) loss on sale or devaluation of securities investments, net	(235,219.00)	48,666.00	181,658.00	(48,857.00)	7,404.00
	(Gain) loss on revaluation of marketable securities held in the financial services business for trading purposes, net	(34,057.00)	(10,401.00)	(7,916.00)	44,821.00	(55,789.00)
	(Gain) loss on revaluation or impairment of securities investments held in the financial services business, net	(72,633.00)	(58,608.00)	(100,729.00)	2,653.00	47.00
	Deferred income taxes	(5,689.00)	(3,688.00)	(1,397.00)	211.00	23,798.00
	Equity in net (income) loss of affiliated companies, net of dividends	65,771.00	(6,661.00)	7,982.00	5,045.00	4,409.00
	(Increase) decrease in notes and accounts receivable, trade	8,819.00	10,022.00	2,269.00	(5,828.00)	(37,529.00)
	(Increase) decrease in inventories	55,712.00	(29,027.00)	33,843.00	(57,804.00)	11,199.00
	(Increase) decrease in film costs	56,987.00	20,248.00	113,485.00	(318,391.00)	(331,179.00)
	Increase (decrease) in notes and accounts payable, trade	(173,654.00)	(266,870.00)	(252,403.00)	(49,525.00)	(1,386.00)
	Increase (decrease) in accrued income and other taxes	(206,621.00)	103,379.00	(118,577.00)	(23,607.00)	26,701.00
	Increase (decrease) in future insurance policy benefits and other	12,446.00	(3,110.00)	(11,033.00)	403,392.00	433,803.00
	(Increase) decrease in deferred insurance acquisition costs	434,786.00	391,541.00	460,336.00	(83,774.00)	(93,234.00)
	(Increase) decrease in marketable securities held in the financial services business for trading purposes	(73,967.00)	(77,656.00)	(79,861.00)	(107,433.00)	(81,456.00)
	(Increase) decrease in other current assets	(25,254.00)	(33,803.00)	(51,565.00)	21,299.00	(21,402.00)
	Increase (decrease) in other current liabilities	91,762.00	(48,115.00)	16,276.00	(25,751.00)	79,114.00
	Other	(55,830.00)	58,656.00	86,718.00	45,457.00	(65,650.00)
	Net cash provided by (used in) operating activities	(38,229.00)	14,147.00	(112,645.00)	749,089.00	809,262.00
Cash flows from investing activities	Payments for purchases of fixed assets	476,165.00	664,116.00	754,640.00	(375,411.00)	(333,509.00)
	Proceeds from sales of fixed assets	(326,490.00)	(283,457.00)	(215,916.00)	26,472.00	13,098.00
	Payments for investments and advances by financial services business	245,758.00	99,694.00	36,777.00	(1,221,093.00)	(1,233,290.00)
	Payments for investments and advances (other than financial services business)	(1,046,764.00)	(1,032,594.00)	(960,045.00)	(20,830.00)	(17,208.00)
	Proceeds from sales or return of investments and collections of advances by financial services business	(92,364.00)	(14,892.00)	(20,029.00)	534,072.00	289,901.00
	Proceeds from sales or return of investments and collections of advances (other than financial services business)	400,654.00	426,621.00	482,537.00	81,535.00	16,078.00
	Proceeds from sales of businesses	78,010.00	75,417.00	49,479.00	17,790.00	3,262.00
	Other	52,756.00			(72,938.00)	7,695.00
	Net cash provided by (used in) investing activities	(16,840.00)	18,709.00	(12,439.00)	(1,030,403.00)	(1,253,973.00)
Cash flows from financing activities	Proceeds from issuance of long-term debt	(705,280.00)	(710,502.00)	(639,636.00)	19,076.00	254,695.00
	Payments of long-term debt	159,781.00	178,935.00	18,507.00	(270,669.00)	(261,299.00)
	Increase (decrease) in short-term borrowings, net	(326,164.00)	(164,540.00)	(258,102.00)	98,153.00	317,827.00
	Increase (decrease) in deposits from customers in the financial services business, net	(29,683.00)	25,183.00	(51,013.00)	165,169.00	277,152.00

	Proceeds from issuance of convertible bonds	237,908.00	238,828.00	57,464.00	120,000.00	
	Proceeds from issuance of new shares	150,000.00			301,708.00	
	Dividends paid	(25,057.00)	(25,643.00)	(13,160.00)	(12,751.00)	(25,301.00)
	Payment for purchase of Sony/ATV shares from noncontrolling interests	(55,178.00)				(76,565.00)
	Other	(23,079.00)	(44,886.00)	(16,891.00)	(40,564.00)	(34,207.00)
	Net cash provided by (used in) financing activities	88,528.00	207,877.00	(263,195.00)	380,122.00	452,302.00
Effect of exchange rate changes on cash and cash equivalents		72,372.00	58,614.00	51,138.00	(64,609.00)	(31,061.00)
Net increase (decrease) in cash and cash equivalents		(68,215.00)	220,105.00	(97,053.00)	34,199.00	(23,470.00)
Cash and cash equivalents at beginning of the period		894,576.00	826,361.00	1,046,466.00	949,413.00	983,612.00
Cash and cash equivalents at end of the period		826,361.00	1,046,466.00	949,413.00	983,612.00	960,142.00